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CONTENTS.

	Page.
Headquarters of the Mining Industry	169
List of Dividends Paid by Mining Companies	169
Production of Gold in the United States	169
The Manufacture of Alum	169
Electricity in Mining in England	169
A Demonstrated Safe Ratio for Universal Bimetallism	170
New Publications	170
Books Received	171
Bismuth.....Geo. Arthur Allen	171
Working Black Sands for Gold.....J. D. Atkinson	171
The Stoiber Electrical Installation at Silverton, Colo., Thomas B. Stearns	171
South African and American Gold Mines.....W. Weston	171
The Gold Belt of Idaho.....W. H. H.	172
Action of the Electric Current on Fused Sulphides	172
The Hardening of Steel.....Henry M. Howe	173
*The Essen Coal Company's Electric Mining Plant, Timothy W. Sprague	174
Notes on Magnetite, II.....Wm. B Phillips	176
Mining Legislation and the California State Miners' Association.	176
*The Girard Water Wheel	177
Abstracts of Official Reports	177
Recent Decisions Affecting the Mining Industry	178
Patents Relating to Mining and Metallurgy	178
Personal, Obituary, Societies, Technical Schools, Industrial	179
Notes: Siberian Railway, 172—The Use of Apyrite as a Lining for Furnaces, 178—Large Lake Vessels, 178.	

* Illustrated.

MINING NEWS:	Wisconsin..... 184	Other Metals. 187	Pittsburg..... 190
Alabama..... 179	FOREIGN MINING NEWS:	CHEMICALS AND MINERALS.	Baltimore..... 190
Alaska 180	Br. Columbia... 184	New York.... 188	St. Louis..... 190
Arizona..... 180	Mexico..... 184	Liverpool..... 188	Coal Stocks..... 190
California..... 180	Nova Scotia.... 184		Ind. and Trust.. 190
Colorado..... 180	Russia..... 184	MINING STOCKS:	Colo Springs . 190
Georgia..... 181	Turkey 184	New York.... 188	Helena..... 190
Idaho..... 181	Dutch Guiana.. 160	Boston..... 188	Shanghai..... 190
Indiana..... 182		Colo. Springs. 188	Salt Lake City. 190
Iowa..... 182	LATEST MINING NEWS 185	Salt Lake City 188	London..... 190
Kansas 182		San Francisco 189	Paris 190
Kentucky..... 182	MARKETS:	London..... 189	Mexico..... 190
Louisiana..... 182	COAL:	Paris 189	Valparaiso 190
Michigan..... 182	New York.... 185	Dividends..... 189	Philadelphia.... 190
Minnesota 182	Buffalo ... 185	July Divid 189	
Missouri..... 182	Pittsburg..... 185	Assessments.. 189	CURRENT PRICES:
Montana 182			Chemicals 190
New Jersey 183	IRON:	STOCK QUOTATIONS:	Minerals..... 190
New Mexico... 183	New York.... 186	New York..... 190	Rarer Metals... 190
New York..... 183	Philadelphia.. 186	Boston..... 190	
Pennsylvania.. 184	Pittsburg..... 186	Denver..... 190	MINING CO'S.... 190
South Dakota.. 184		Duluth..... 190	
Texas..... 184	METALS:	Aspen..... 190	ADVT. RATES. 18
Vermont..... 184	Gold & Silver 186	San Francisco.. 190	ADVT. INDEX. 15
Washington.... 184			
West Virginia.. 184			

THE HEADQUARTERS OF THE MINING INDUSTRY.

Visitors find here files of a great number of papers from the mining districts of this and other countries, and books of reference which can be consulted for information on any question in which they may be interested. They can have their letters addressed in care of "The Engineering and Mining Journal," P. O. Box 1833, New York, and will find in the headquarters every convenience for correspondence.

The list of dividends paid by some of our mines, which is published each month in "The Engineering and Mining Journal," is very imperfect, chiefly because of the neglect or disinclination of mine owners to report promptly to us. Many of the most profitable mines in the country are managed as private concerns and publish no reports, but they do an injury to the whole industry by not reporting their dividends. Readers are apt to conclude that the dividends reported are the greater part of those paid, and that consequently the industry is an unprofitable one, and this tends to keep capital out of it.

We shall thank any of our readers who will give us the names and post office addresses of any mines which are paying dividends and are not on our list, and we shall be especially grateful to those who will kindly supplement our list with the data necessary to enable us to add new names to it.

The production of gold in the United States during the first seven months of this year has amounted to about $28,000,000 or $29,000,000, including that which came from imported ores and bullion, chiefly Mexican and Canadian, as well as what was of domestic origin. The imports of gold during the seven months amounted to $26,558,995, and exports to $39,098,956, the net exports being $12,539,961—so that the stock of gold in the country has increased about $16,000,000 during the seven months notwithstanding all the exports. About $8,000,000 has been used in the arts, so that our stock of gold available for money actually increased some $8,000,000 during the first seven months of the year. As the country is producing now from domestic and foreign material at the rate of nearly one million dollars a week, the export of a few millions of dollars need cause no uneasiness, nor is there any mystery as to the manner in which the syndicate is enabled to maintain the Treasury reserve above $100,000,000.

The manufacture of alum and sulphate of alumina, those common and comparatively cheap chemical products, is a very important industry. It amounted in 1894 in the United States to no less than 72,000 tons, and in 1893 to 96,000 tons having an average value of 1¼ cents a pound, or a total value at the works of $2,160,000 in 1894 and $2,880,000 in 1893, and yet this great industry has heretofore been shrouded in comparative mystery. In the United States it is controlled by a small number of manufacturers who are extremely unwilling to give any information concerning the methods of manufacture adopted, the cost of production or other matters that would have great interest to many readers.

In England even a greater mystery surrounds the alum business, and we found it impossible there to secure the information we desired to make public.

The textbooks in any language give little practically useful information on the subject, hence we are safe in saying that "a long felt want" in this direction is supplied by an excellent monograph in the "Mineral Industry," Vol. III., in which will be found full working details of the several methods of manufacture, and the itemized cost of the same. This is, in fact, an exhaustive treatise, the only one in any language on this important subject.

The author of this monograph, Mr. John Enequist, is an experienced practical alum maker, as well as a competent chemist, and his contribution is therefore authoritative. It will prove of high value to industrial chemists and manufacturers everywhere, and will, no doubt, greatly promote the development of this industry.

ELECTRICITY IN MINING IN ENGLAND.

Electrical applications in mining work in Great Britain appear to be on an extremely small scale, and are chiefly confined to coal mines. In the United States, while coal mining is at present its largest field, we find electricity applied in base and precious metal mining on a much larger scale than is used in England even for coal, and here, in coal operations, the installations in dangerous gaseous mines have been very few.

Mr. H. T. Haws recently read a paper before the Institution of Electrical Engineers, which is published by the "Electrician" (London), in which he discusses electrical transmission, particularly in reference to mining operations. He expresses the rather impolitic, but probably well founded, opinion, that the really good electrical mining engineers in Eng-

land could be counted on the fingers of both hands. A large part of his paper is devoted to the best insulation to be used on wires run under ground, while in this country the practice is nearly all in the direction of using bare wires.

On account of the advantages of the multiphase system, which the "Engineering and Mining Journal" has already pointed out, he advocates the use of multiphase apparatus in mining work, although stating that he knows of no such applications already made.

In giving illustrations of electrical applications in England, Mr. Haws mentions a 100-horse power double drum hoist at the Abercanaid Colliery, operated by a motor which drives a counter shaft by ropes, the counter shaft being geared to the drum shaft. The distance of transmission is given as "nearly three-quarters of a mile." Another notable example of English electric application in ore mining is the plant of the Greenside Silver Lead Mines. Here the total transmission is 1¼ miles, and the 90-horse power generated is used for driving a hoist, three throw horizontal pumps and an underground locomotive. The third and only other example cited is the East Hull Colliery, where three small pumps are driven by motors, the transmission being 1·7 miles.

One rather startling statement of Mr. Haws is that it is unsafe to use a voltage over 50 for coal cutting apparatus, "especially if it is worked by non-electrical miners." Inasmuch as a pressure of 220 to 250 volts has been used for years in coal mines in this country, and the last few months have seen the introduction of 500-volt currents in this same work, and, moreover, as our machine runners usually become such by a couple of days watching the operation of machines, and so would seem to come under the head of "non-electrical," we think Mr. Haws might properly modify this statement.

We would suggest that a few days spent around Scranton and Pittsburgh, Pa., for instance, would open the eyes of the English electrical mining engineers to the possibilities in electrical mining plants.

A DEMONSTRATED SAFE RATIO FOR UNIVERSAL BIMETALLISM.

Everyone will admit that the adoption of universal bimetallism would involve no danger whatever with an annual production of gold equal in value, at the ratio adopted, to that of silver. Indeed, a reserve of 25 per cent. of their liabilities, or even much less than this, is considered a perfectly safe reserve for banks. The amount of gold money in the world is now about equal to that of silver at coining values, and under an intelligent international agreement there could never be much call for gold in exchange for silver.

Gold monometallists frequently assert that the bimetallists cannot name any ratio between the values of gold and silver that would be permanent and would secure an equal production of the metals. The question of a logical and permanent ratio is, however, one capable of absolute demonstration, as was illustrated in these columns (July 27th and August 3d). Experience is worth more than dogmatic assertion in settling such questions, and we gave the world's experience for 403 years, which showed that with an average commercial value of silver to gold as 1 to 16·18, the total production of silver, by weight, was only 19·2 times that of gold and that almost at the summit of a great silver wave. For some years past this production ratio has been declining—in 1894 it was 17·9 to 1—and at the mid height of the silver wave the total production up to that date will probably not exceed 16 to 1 of gold.

If there had not been during these 403 years a general decline in the relative value of silver, from about 11 to 1 down to 32 to 1, this would have permitted an exact demonstration that the amount of silver which could be produced with a relative price of 16 to 1 with gold could not, over a long period, much exceed in value the output of gold, but as the relative and actual production of silver is now declining, it is probable that during the next fifty years a value ratio of about 18 to 1 would be necessary to secure a production of silver in the whole world equal in value to that of the gold output. It will never be possible to maintain absolute uniformity in the relative or unchangeable equality in the actual production of the precious metals; these will vary with the opening of bonanzas of one or the other of them, and by the temporary relative popularity of investing in gold or silver mines. At a value ratio of even 16 to 1, with universal bimetallism, there would be no risk in very many years of dangerously overproducing silver, for the value of the output of gold would nearly equal that of silver, and a ratio of 18 or certainly one of 20 to 1; that is, a value of $1.148, or of $1.033 per ounce for silver, would during the next fifty years favor the production of gold.

The essential conditions of safety and permanency in the adoption of universal bimetallism would be attained absolutely by placing the control of the ratio in a permanent monetary commission or Clearing House, which could, if it became necessary, make small changes, at long intervals, in the value ratio of the metals, without inconvenience or loss to any nation or individual. The assurance of permanency and safety that such a control of the ratio would give the financial world would dissipate all fear or anxiety, and would prevent any run on gold.

It is certain that only an international agreement for universal bimetallism would create a market, that would exchange gold for silver, wide enough to absorb the world's production. Free coinage in countries that are on the silver basis, that is, where gold is not obtainable for silver at the coining ratio, cannot advance the gold price of silver, and no country could alone maintain the value of silver at its coining rate by paying gold for it on demand, the only way in which that value can be maintained. This country has been obliged to borrow large sums of gold during the past year to maintain at its coining rate the value of our definite, known amount of silver and paper money, but no one imagines it could borrow enough gold to maintain this parity in value for all the silver that would be offered if such an attempt were made to maintain its value.

NEW PUBLICATIONS.

THE MINERAL INDUSTRY: ITS STATISTICS, TECHNOLOGY AND TRADE IN THE UNITED STATES AND OTHER COUNTRIES, TO THE END OF 1894. VOLUME III. Edited by Richard P. Rothwell. New York and London: the Scientific Publishing Company. Pages 770; illustrated. Price $5.

The third volume of the "Mineral Industry" maintains the high standard set by its two predecessors. It is, at first, a matter of surprise that so large a book should be required, and can be produced, simply to record annually the commercial history and technical progress of this one industry. But a part of this surprise disappears upon the further reflection that mining and metallurgy constitute the most important and the most rapidly progressive department of civilized activity. It remains, however, all the more amazing that such a mass of current statistics and of critical comment, covering so many branches and countries, should be prepared and issued annually, as the appendage to a weekly technical journal. Examination of its pages shows that it is by no means a mere compilation, with scissors and paste, from the columns of "The Engineering and Mining Journal." On the contrary, many of the articles which it contains are independent treatises by high authorities; and the whole volume has been so carefully edited and arranged as to acquire, even for its quoted portions, a new value and convenience in use. I have spent a considerable time in testing its completeness by looking up various items of scientific or commercial importance, and the result has been to impress me anew with the comprehensive scope and the care in detail which characterize the work. I expect to find this volume, as I have already found the first and second volume, indispensable for daily reference in my professional and literary work, and I do not see how a mining engineer or metallurgist can be completely equipped without it, no matter how many other books and periodicals his library may contain.

Apart from the statistical and commercial material, which reflects much credit upon the editorial staff, and upon the experts at home and abroad who have rendered efficient assistance, the technically valuable papers in this volume may be conveniently grouped, in a rough way, in four classes.

1. Reports of progress in special departments during 1894. Specimens of this class are the exhaustive summaries furnished by Prof. Hofman on silver-lead smelting, and by Prof. Richards on ore-dressing. These gentlemen and some of their colleagues in the Massachusetts Institute of Technology are establishing for that school, by means of their many contributions to the literature of practice, an intimate connection with the active professions and trades concerned, which cannot fail to react favorably upon both the reputation and the efficiency of the institution.

2. Reviews of modern practice, not confined to the year 1894. These are naturally found in those departments which were not covered by similar summaries in previous volumes. I may mention under this head the papers of Dr. Peters on improvements in the metallurgy of copper; of Louis Janin, Jr., on the amalgamation of free-milling gold-ores; of Mr. Sprague on electrical power in mining; and of Mr. Adams on improvements in the sulphuric acid manufacture.

3. Special monographs on questions of technical interest, such as the admirable paper of Mr. Raht on the distribution of silver in lead bullion, which cannot be too highly valued or too carefully studied by assayers.

4. Accounts of particular industries and of the mineral resources and mining methods of particular regions, such as Mr. Enequist's paper on alum, Mr. Channing's report on the iron-mining of Lake Superior; Mr. Harze's description of Belgian coal-mining; Mr. Rickard's sketch of the gold-resources of Colorado; and the excellent review by Mr. Thies of the mineral resources of Russia and Siberia, which contains much information not easily accessible elsewhere.

This hasty survey does not by any means exhaust the catalogue of the interesting features of the book. But one might as well try to review a dictionary. I have neglected to mention many good things, by reason of the limitations of time and space.

Such a volume is, on the one hand, in the highest degree creditable to the enterprise and spirit of its publishers, and to the skill and industry of its authors and editors. On the other hand, I cannot but feel that no small proof of the progressiveness and intelligence of American mining engineers and metallurgists is furnished by the existence of a demand on their part, justifying the great labor and expense of so costly an annual publication.

I have not busied myself to find small defects in a work the salient merits of which are so great. But I must be permitted to say that the flaming red color of the binding of the copy before me is not, in my judgment, well-chosen. It does not match the sober, stable and agreeable brown of the two preceding volumes; it is not suitable to a work of permanent value, which is to stand for years on the library shelf; and I don't believe it will wear well, which is a consideration worth weighing, in view of the fact that the contents it covers are destined to wear indefinitely, and to grow even more valuable with age. R. W. RAYMOND.

[The red color was adopted because it is easily recognized, and because it stands exposure to the light without fading better than any other color. The Imperial Institute of London, and others, have adopted this color for their publications for the same reasons.—PUBLISHERS OF THE "MINERAL INDUSTRY."]

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

Coin Re-Minted; or, The Pith of It. By Plain Citizen. New York, 1895; published by the Plain Citizen Publishing Company. Pages 162. Price 25c.

A Handbook for Surveyors. By Mansfield Merriman and John P Brooks. New York, 1895; published by John Wiley & Sons. Pages 242.

Bulletin No. 39. Utah Agricultural College, Experiment Station. Salt Lake City, 1895; published by the College. Pages 76. Gratis.

Leadville, Lake County and the Gold Belt. By J. F. Manning, Leadville, Colorado. Published by Manning, O'Keefe & DeLashmutt. Pages 162; illustrated.

Tables for the Determination of Common Minerals. By W. O. Crosby, Boston, Mass., 1895. Published by the author. Pages 106.

Gold and Silver. By W. O. Peeples, Chattanooga, Tennessee. Published by the Gold and Silver Publishing Company. Pages 103; illustrated. Price 25c.

Transactions of the Australasian Institute of Mining Engineers. Volume II. Adelaide, 1894. Published by the Institute. Pages 139; illustrated.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

Bismuth.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: You will confer a great favor on me if you would kindly let me know by what firm or firms the trade in bismuth is controlled. We have discovered a deposit out here which we think is in merchantable quantities and desire to get some data with a view of placing the same on the market.

GEO. ARTHUR ALLEN.

PRESCOT, A. T., Aug. 13, 1895.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: I am interested in this country in bismuth mining. The ore is rich in metal and easily treated, average yield about 50% metallic bismuth, and some of it contains a little gold and silver. Some years ago I sent a ton of ore to a Mr. Engle, a metallurgist in Philadelphia, Pa., but his charges were so high for dealing with it that we ceased sending and have not produced much since. Will you kindly put us in communication with some reliable metallurgist or manufacturing chemist to whom we could consign another shipment of ore? In England there are two "rings" which control the price of this metal and buy and sell it at almost any figure they choose. As bismuth of good quality must be used in your country, I fail to see why direct consignments cannot be made with mutual advantage.

A. M.

BANNOCKBURN, Inverell, N. S. W., July 8th, 1895.

Working Black Sands for Gold.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: We have a large number of readers who are interested in your "Journal," and, if not too much trouble, will you please give me the information below, which a number of people here would like to know, and oblige, or answer in your next issue if more desirable.

1. What machines or inventions are there, if any, which separate successfully fine flour gold from black or iron sands, as found in bars of rivers in certain countries?

2. Where, or in what other countries other than the United States and British Columbia, is there to be found fine flour gold that is mixed with black sand, or, rather, that cannot be saved on account of black sand, and that would pay if the iron sand could be taken out, etc.?

If possible, please name such countries in the order of the probable extent of such deposits.

J. D. ATKINSON,

SEATTLE, WASH., Aug. 27. Librarian, Seattle Public Library.

The Stoiber Electrical Installation at Silverton, Colo.

EDITOR ENGINEERING AND MINING JOURNAL:

In "The Engineering and Mining Journal" of June 22, 1895, appeared an article entitled "Electric Installation at Silverton, Colo."

The article in question, while it gives an excellent description of the electrical machinery, is not complete as a description of the plant, inasmuch as it does not describe the underground application of the electrical power transmitted. In some respects, this is the most interesting feature and certainly merits description. The operation of the mill, the surface pump, and the lighting by direct belt drive to shaft from motor shaft is very simple, but the direct application of electricity to power drills and to shaft pumping is as yet a signal failure.

In the Stoiber plant the air compressor completes the good work begun by the electricity, and makes underground drilling and pumping possible. A duplex piston air inlet compressor of the Ingersoll-Sergeant manufacture is located next the hoist in an underground chamber cut at the shaft collar. The compressed air is taken down the shaft to operate the Sergeant drills and pumps of the ordinary Cameron or Snow pattern. Incidentally one very important object is effected, the ventilation of the workings, saving thereby the running of a special fan for air supply to miners. The plant, as it stands to-day, represents the greatest efficiency and economy possible for underground work, namely, electric transmission of power generated by water and applied by compressed air.

While there is a possibility that some day electricity may be applied directly to drills and to pumps operating in wet shafts, as it is possible that in the future an economical storage battery may be invented, yet, taking into account the auxiliary advantage of ventilation, it is not apparent wherein the gain will exist in such direct application over the present most satisfactory use of compressed air. The hoist was designed and manufactured by the Stearns-Rogers Manufacturing Company, of Denver. The motor and drum are mounted on a self contained bed-frame. The transmission is by rawhide pinions and cut iron gears, two reductions, with a Hill clutch on the second shaft as a safety device while hoisting, or as a means of disengagement should it be desirable to lower by brake alone.

DENVER, Colo., Aug., 1895. THOS. B. STEARNS.

South African and American Gold Mines.

EDITOR ENGINEERING AND MINING JOURNAL.

Sir: I have read with much interest the article in your issue of August 3d relative to the production of gold in South Africa. It would now give the greatest gratification to your many readers in the Western States who are engaged in the mining and production of that metal, and the various industries connected therewith, if you would tell us at what profit to the shareholders in the various South African companies, is this gold produced.

When we endeavor to get French and English capital to develop our gold mines, we are told that it is no good, that South Africa and "Westralia" is the fashion, and that there is a "bitter hostility" to any enterprise with the name "American" attached to it. We should now like to know on what this "fashion," and likewise this "hostility" is grounded.

I read of the many millions sterling made in a few years in South African mines by various individuals, but in looking into the matter I find that these gentlemen made their millions, not out of the gold that came from the "banket," but by getting options on and selling the land containing or supposed to contain the "banket" to the ever-gullible British public, which, given a title at the head of a directorate and the property in a British possession, will at once swallow the rudest and coarsest of baits and buy the stock in a concern that on this side would not catch a single "sucker."

The following list is copied from a letter from London from one who is "in the know," from a gentleman in good standing who would not purposely make the slightest misstatement. Is it possible that in this age of enlightenment a craze so senseless exists as to cause people to pay at the rate of fifty-six millions for a property that has never paid a dividend? We gold-miners should all be very glad to get some information through your columns on these points, and as we know your paper to be free and independent and fearless, we believe you will give it to us.

As regards Western Australia we have all heard of the "Golden Hole" and how the promoters crawled in and then pulled the hole in after them. We have also read a vast amount of buncombe published about that country. We should also like to know the cost of producing the gold, where there is no fuel, hardly any water and a fair prospect of sulphuret ores with depth.

Cripple Creek, Colo., which at present has a gold-producing area of about six miles square (but increasing) will produce this year about 400,000 oz. of gold. Will the vast territory known as Western Australia do as much?

The average of the South African ores is $11 per ton. The yield of the Cripple Creek low-grade ores, which are treated at the Florence and local cyanide and chlorination works, is from ½ oz. to 1½ oz., say an average of 1 oz. per ton, and the average of the high-grade ore which is shipped to the smelters is about 5 oz. per ton. For what were until quite lately considered "waste dumps," and carrying values of about $12 per ton, the owners are now getting freight and treatment rates at the above mills of $8 to $9, this giving them a margin of $2.50 to $3.50 per ton on such ores. There are two railroads into the camp and every facility for cheap production and reduction.

The following is the extract from the letter above referred to in relation to South African mines:

"Randfontein.—Issued for $10,000,000; selling to-day for $31,000,000; never has paid a dividend excepting in shares of companies set off from it, and none of them have as yet paid dividends; has 40,000 acres of land and in one place 60 stamps.

"Rand Mines, Limited (set off from Randfontein).—Issued for $1,665,000; selling to-day for $56,610,000; never has paid a dividend; has 1,700 acres of land. How's this?

"Robinson.—Issued for $13,750,000; selling to-day for $26,000,000; has paid in seven years $2,200,000 in dividends—10% in 1895; 5% in 1895; has 320 acres; 70 stamps.

"Simmer & Jack.—Issued for $1,250,000; selling to-day for $21,250,000; has paid in eight years $625,000 in dividends; has 1,200 acres and 100 stamps.

"Modderfontein-New.—Issued for $875,000; selling to-day for $14,000,000; never paid a dividend; has 82 claims, about 110 acres.

"Wemmer.—Issued for $275,000; selling to-day for $3,300,000; has never paid a dividend; has 43 claims; 50 stamps.

"City & Suburban.—Issued for $425,000; selling to-day for $11,475,000; has paid in dividends $425,000; has 79 claims and 130 stamps.

"Crown Deep.—Issued for $1,250,000; selling to-day for $16,250,000; has never paid a dividend.

"Crown Reef.—Issued for $600,000; selling to-day for $6,200,000; has paid in dividends $450,000; has 69 claims; 120 stamps.

"Ferreira.—Issued for $445,000; selling to-day for $7,800,000; has paid in dividends, $778,750; has 55 claims; 40 stamps.

"Nourse Deep.—Issued for $1,775,000; selling to-day for $10,650,000; never paid a dividend; has 269 claims; no machinery.

"Twenty-five mines in all on the list are this year paying dividends, and generally, they are those of small capital, and this out of hundreds that are dealt in, in all of Europe."

If the facts given in the foregoing (written about a month since) are true, one of two things will happen. When the bubble is pricked, foreign capital will either shun mining investments altogether in well merited disgust, or it will turn toward some of our marvelous gold camps in the Western States toward which there is now such bitter hostility.

We, of course, do not wish the former to happen, and it is looking toward a possibility of the latter that we appeal for enlightenment and information to our mentor and friend, "The Engineering and Mining Journal."

DENVER, Colo., August 10th, 1895. W. WESTON.

The Gold Belt of Idaho.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: Idaho is essentially a mining State. It was her mines that first stimulated immigration within her borders: it is to the result of these mines that her present prosperity is in a great measure due, and it is therefore proper that this article, containing a brief sketch of the vast field that is open for prospectors and capitalists, be brought to notice through the columns of the "Engineering and Mining Journal."

The discovery of gold in Idaho was first reported to have been found by a French Canadian on the Pend D'Oreille River, in 1852. Two years later General Lander found gold while exploring the route for a military road from Columbia River to Fort Bridger. The earliest discoveries, of any authentic record, were made in 1858-59, in the Cœur D'Alene mountains by members of a party sent out under Capt. John Mullan, the originator of the now famous Mullan road, built nearly 40 years ago. Gold in considerable quantity, and which afterward led to excitement, was found in 1860 by Capt. E. D. Pierce and others, on Oro Fino Creek, a branch of the Middle Fork of Clearwater River, not far from the present camp of Pierce City, which derived its name from the first discoverer.

The locality now known as Elk City was discovered early in the spring of 1861 by parties from Pierce City, and soon after Florence was founded by Elk City men. In 1862 the camp of Warren was established, then Boise Basin was struck.

Idaho is one continuous gold belt; from the panhandle on the north to her southern boundary; from the summit of the Bitter Roots on the east to the Snake River on the west, gold has been found in paying quantities either in placer deposits or quartz in almost every locality. By paying, I mean by the use of proper machinery and transportation facilities, but not rich enough to stand mule back transportation.

The gold belt in Idaho can therefore be properly spoken of as being 400 miles in length and from 40 to 175 miles wide, practically following the present boundaries of the State. Up in the northeastern corner of the panhandle, on the headwaters of the Priest River many years ago, coarse gold was found in pockets in a heavy glacial drift. In the same panhandle, on the eastern side, on a tributary of the Yahko River, but a short distance from the Great Northern Railroad, a mild excitement is being created by the discovery of some free milling gold quartz, of what extent or value is at this writing unknown. Placer gold can be found in almost any stream of the panhandle, but not in any great quantity.

Directly south, and within a comparatively few miles is the Coeur D'Alene country, rich in precious minerals. It is now the great lead producing section of the State, but its present mining prosperity is wholly due to the discovery of gold in Eagle, in 1884, which caused one of the most remarkable excitements in mining history. A great many placer claims are still being worked at a profit, and many new stamp mills are being erected on the quartz ledges of that country. Up on the head of the St. Joe and St. Marie rivers, gold has also been found in paying quantities.

In the eastern portion of Latah County, but a short distance from Moscow of Palouse County, is the Hoodoo district, well known for its placer mines.

Pierce City district, in the southern part of Shoshone County, has been, and is still a large producing camp from placer mines. Many new companies are operating in this camp this season opening new ground on a large scale, and two stamp mills have been erected on promising quartz claims. Up under the shadow of the Bitter Roots is Moose City, a placer camp that caused a great rush in the early days. Gold is found in paying quantities also on the main Middle Fork of Clearwater and a number of its branches.

Directly south of Pierce City we come to the camps of Idaho County, namely, Elk City, Dixie, Florence and Warren. These camps, with the contiguous country, form the largest connected district of gold-bearing ledges and placer deposits in the State. Using the Buffalo Hump as a center, and drawing a circle with a diameter of 75 miles, it will include all of the above-mentioned camps. The camps form nearly one vast field of tailings from the old placer workings of early days. Many large enterprises have been started this season in these camps, opening tracts of ground that have hitherto lain idle for want of capital and proper machinery to work them. The quartz ledges of this entire section carry gold. Some carry silver to more or less extent, and some copper is found in small quantities. Stamp mills are working in Warren. Elk City has a one-stamp prospecting mill and the other camps have a number of arastras operating on high-grade ore. From the indications this season new mills will be erected in Florence, Warren and Elk City. Elk City has just completed a wagon road as a part of the State system, and it will tend to better the outlook for that promising camp. The gold output from this region will probably double that of last year.

Nearly the entire length of Salmon River one can find companies of men placer mining. Since the completion of the State wagon road strong companies are taking hold and are opening both old and new properties on a large scale. Placer mining in Idaho can be carried on unrestricted, as there are no laws or regulations in the State preventing the use of monitors nor the dumping of placer debris in streams. Many a poor man has made a winter's grub stake rocking the skim diggings along the river. These skim diggings never give out, for each season's high water brings down with the flood fine gold that is re-deposited in favorable places along the banks in new bars of fine gravel and sand. Even the moss clinging to the rocks along the banks catches gold, and men have made good wages scraping off this moss and rocking out the sand and fine gravel caught in it. The Salmon River cuts a wide swath through Idaho County, in Central Idaho, from east to west. Its headwaters come from the rich sections of Lemhi, Custer and other southern counties; its tributaries rise among the placer camps of Idaho and other counties

Among the mountains of Eastern Idaho gold has been found in paying quantities. The camps in Lemhi County have always been noted for their rich placer deposits and still richer quartz ledges. Around Gibbonsville several large mills are in operation.

The country in and around Boise Basin, ever since the discovery, has been a source of profit from its placer deposits and quartz mines. Idaho City, Rocky Bar, Atlanta, and other camps in Boise and Alturas Counties have produced their millions, and many supposed worked out and abandoned mines are to-day making richer strikes than ever. Custer County also has mines that have become famous for their production of gold.

Not far from the capital of the State in Ada County is the new camp of Willowcreek that is attracting the attention of the southern portion of the State by its rich free milling gold quartz. A new mill has been erected and is yielding large returns to its owner.

In all the basins formed by the Boise and Payette Rivers placer mining has been carried on for years in various localities.

Up in Washington County is the great copper district of Seven Devils. While the copper mines are not at present being worked, the principal properties have been acquired by a strong company who are holding them. This district and the adjoining one of Rapid River is also a gold camp.

Very little work has been done on gold properties south of the Snake River, except in Owyhee County. In the Silver City and De Lamar districts, are situated the great properties of the De Lamar Company that produce both gold and silver. These camps are to day the most active gold camps in the State, as there are many other properties being worked there besides the De Lamar. Snake River, like the Salmon River in the central portion of the State, is a continuous deposit of auriferous gravel that has been worked in many places and is still producing a large amount of gold.

W. H. H.

ACTION OF THE ELECTRIC CURRENT ON FUSED SULPHIDES.*

After having determined that carbon, heated to redness under the influence of an electric current of feeble voltage, is transported from the positive to the negative electrode, which fact permitted me to indicate a new method of iron cementation, I thought that this action of an electric current ought not to be limited to carbon. To determine this fact, I made experiments in the laboratories of M. Hillairet. I employed a tube of refractory material placed horizontally in a reverberatory furnace, and receiving the matter to be electrolized between the two electrodes in the heated part of the tube. The current was furnished by a Gramme machine. I operated it first on a raw nickel matte from Sudbury, Ontario. I placed a certain quantity of it in the middle of the tube between the two carbons. The spaces between the carbon rods and the walls of the tube were filled with refractory earth mixed with charcoal, to guard against the intrusion of oxygen, but not the exit of gas under feeble pressure which is formed during the electrolyses, and which can thus escape by the cracks which the heating produces in the clay mass. The matte being melted, I passed a current of 10 volts and 23 amperes; the current only showed feeble oscillations according to the volt meters, proving that there was a great regularity in the conductibility of the molten mass. Moreover, the voltage was gradually lowered, although the temperature of the reverberatory furnace was almost constant, which went to prove that the nature of the mixture was changed. After an hour of heating, slow cooling and stoppage of the current, I opened the tube. The positive carbon rod was worn to a feather edge at its upper end, while the negative rod remained intact. Of the matte an analysis was made of those parts which were solidified at the point of contact of the two electrodes. Only the insoluble parts which existed in fragments of the walls of the tube strongly attached to the matte, even after cooling, were eliminated from the samples. Of the analyses given below, No. 1 is of the matte taken; Nos. 2 and 3 are respectively those of the material in contact with the anode and of the cathode after the electrolyses, and No. 4 shows an average of Nos. 2 and 3:

	(1)	(2)	(3)	(4)
S%.....	21·10	16·69	4·70	10·65
Fe%.....	33·30	35 49	49·10	42·30
Ni%.....	16·30	5·13	19·10	12·14
Cu%.....	29 00	39·90	26·13	33·02
	99·70	99 20	99 03	98·11

These analyses show that 50% of the sulphur is eliminated, which sulphur keeps with the copper, especially near the anode; that the iron remains near the cathode, where it seems to accumulate according to the average analysis, No. 4; that the nickel regularly increases in quantity from the anode to the cathode, and the copper diminishes in a regular arithmetical progression from the anode to the cathode. I think that one may conclude from the results of the above experiment that (1) the sulphur combined with the metals in the molten state, in the absence of air, when traversed by an electric current (the electrodes, at least, the anode, being of carbon), is gradually eliminated in the form of sulphide of carbon; (2) in a mixture of molten metallic sulphides, in the absence of air, traversed by an electric current, the electric conductivity of the mixture remains homogenous at every moment, increasing little by little on account of the gradual elimination of sulphur; the metals and the remaining sulphur arrange themselves in such a way that each elementary section of the bath taken perpendicularly to the direction of the current, has the same electrical conducivity; thus the copper, a better conductor than iron or nickel, keeps the greatest portion of the sulphur, so that its conductivity may be reduced in the desired proportion.

It is possible, I think, from the above experiments, to explain certain observed phenomena; for example, the mode of distribution of the metals free from, or combined with, sulphur in veins.

Siberian Railway.—The new location of the Trans-Baikal section of the Siberian Railway is now completed. The original plans for this line were abandoned owing to the fact that they would have necessitated the carrying of the line to an elevation of 3,000 ft. above the sea, through arid districts where but few settlers could make a livelihood. A more southern route has now been adopted, which, though considerably longer, will run by four of the principal rivers, through regions rich in salt, soda, silver, copper, iron, lead and gold, and in which many mines have been opened up. Some 750 miles of the Siberian Railway are open for traffic—Chelabinsk to Omsk, in the west, 500 miles, and Vladivostock to Grafskaia, in the east, 250 miles. Thus Omsk is placed in direct communication with Moscow and St. Petersburg. Of the total length of 6,000 miles from St. Petersburg to Vladivostock, about 3,700 miles have still to be completed.

* Paper read before the Paris Academy of Sciences on January 28th, 1895, by Jules Garnier.

THE HARDENING OF STEEL.*

By Henry M. Howe.

The two prominent theories of the hardening of steel both hold that its sudden cooling acts by retaining a special condition which is reached spontaneously at a red heat, but which would be departed from in slow cooling. The carbon theory holds that it is the preservation of a special condition of carbon; the allotropic theory, that it is the preservation of a special allotropic hard, strong, brittle β modification of the iron which causes hardening. This latter theory farther holds that the reason why the degree of hardening is proportional to the amount of carbon in the steel is that the carbon acts as a brake to retard the change of the iron from the hard or β to the soft or α modification.

With the allotropic theory is associated the belief that the distortion in cold-working (wire-drawing, etc.) also induces the β modification. But if it induces any allotropic modification, this should be distinguished by a special name from that (if any) caused by quenching, till their identity is established better than at present.

We have four questions:

1. Does cold work induce an allotropic modification, i. e., is the cold-work change allotropic? If so let us call this modification δ iron.

2. Does hardening induce an allotropic modification? If so let us call it β iron.

3. Are β and δ iron identical?

4. How far are the effects of quenching due to change in condition of carbon and how far to allotropic change?

1. Cold work can more than double the tenacity, nearly triple the elastic limit, and probably completely distroy the ductility even of the most ductile iron; it makes the metal more corrodible by dilute acid, but less corrodible by sea water. These effects are too great to refer to purely mechanical action, hence they must be due to some chemical or physical cause; hence the change which they represent is like in kind to the recognized allotropic changes. The fact that cold work has but little effect on the modulus of elasticity, the density, and the electric conductivity, does not disprove allotropy, because though hardening steel certainly induces chemical change it does not change the modulus much; and, indeed, many familiar allotropic changes leave many of the prominent properties unchanged; compare calcite with arragonite, pyrite with marcasite, etc.

Further reasons for calling the cold work change allotropic are:

A, that cold worked iron gave out more heat on dissolving than like iron not cold worked, but unfortunately only in inconclusive experiments.

B, that the distortion on passing the elastic limit in tensile or compressive testing, which is one form of cold work, causes a jog in the strain diagram like that which accompanies the allotropic change from yellow to red iodide of mercury under pressure, the condensation of steam into water, which latter transformation is like in nature to allotropic change, etc., etc.

C. That if the cold-work change be started, it goes on spontaneously during rest after the distortion has ceased.

D. That the magnetic retentiveness increases rapidly during the jog, though increasing relatively slowly thereafter.

E. That cold work appears to make unmagnetizable 25% nickel-steel magnetizable, a change suggestive of allotropy; and the existence of allotropy in any one case of cold working, such as that of nickel-steel, smooths the way to admitting its existence in other cases.

Is the change which cold work induces in the other malleable metals also allotropic? It affects them qualitatively like iron, and not so differently quantitatively as to suggest that these changes in these two classes of metals, changes which are alike in mode of introduction, in effects, and in mode of removal, are different in nature. Cold work seems to increase the tenacity of copper, aluminum, phosphor bronze (and, for all we know, of the other metals also) as much as that of iron, and to lower the electric conductivity of copper and silver more than that of iron. When the elastic limit of zinc is raised by cold work, it continues growing after the cold work has ceased, much as that of iron does. The jog which ushers in the cold work change of iron, indeed, is much less common in other metals; but this mere difference in frequency does not indicate any difference in the underlying nature of the cold work change. Some irons seem never to give a jog under any conditions; and at certain temperatures no iron ever gives any jog, though in both these sets of cases the cold work change seems to accompany the cold distortion. Moreover, at least one alloy resembles iron very closely in having at a certain temperature a series of repeated jogs. Thus the jog is a reason for classing the cold work change of other metals with, rather than apart from, that of iron.

A reason for classing them apart, however, is that, in one experiment, cold-working increased the heat which iron evolved when subsequently dissolved in a calorimeter, though it did not affect the heat-evolution of copper. But the difference was slight, the experiment inconclusive, and the data scanty.

In short, having called the cold-work change in iron allotropic, I cannot avoid calling that of the other metals allotropic too.

2. Does hardening induce an allotropic modification? We must distinguish carefully between real allotropic changes and those of structure. Microscopic evidence of structural change is not necessarily proof of allotropy. Allotropy is likely to induce structural change, but structural change may occur without allotropy of the kind we are here considering, which, moreover, is something more than is meant by the words, "Every substance becomes more or less a different substance at every different temperature." If we call the change which accompanies every differential change of temperature allotropy, then we should distinguish it from the allotropy which is invoked to explain the hardening of steel, e. g., by calling the former minor and the latter major allotropy.

Evidences of allotropy of iron are the sudden disappearance of the magnetic properties in heating, the sudden changes in specific heat, and the spontaneous retardations which occur in the cooling even of practically carbonless iron. But is this allotropic change preserved in sudden cooling? The magnetic phenomena at first seem to argue "No," for at a red heat iron becomes unmagnetizable, whence we infer that β iron is an unmagnetizable modification; yet hardened steel is highly magnetizable. But enough iron may change from β to α during sudden cooling to give hardened steel its peculiar magnetic properties, which indeed differ enough from those of unquenched steel to suggest in themselves an allotropic difference.

Sufficiently rapid cooling can nearly triple the tenacity of practically carbonless steel; this argues powerfully that it preserves an allotropic change. There is too little carbon present to explain this strengthening; it is too great to refer readily to stress or structure; finally the properties of this low-carbon steel seem little affected by the structural changes which affect the properties of high-carbon steel so profoundly. By elimination allotropy remains as the sole sufficient cause. Hence I admit provisionally that an allotropic change is preserved in hardening.

3. Are the allotropic changes induced by cold work and by quenching identical, i. e., are β and δ iron identical? The effects of these two operations are alike in raising the elastic limit, tensile strength, hardness and brittleness, in lowering the density, in preventing the jog, and in lessening the corrodibleness by sea-water; but, for like degrees of strengthening and of raising the elastic limit there is an enormous difference between the effects of hardening and those of cold-working as regards hardness, brittleness and electric conductivity, and perhaps as regards dilatation; their effects seem to be opposite as regards corrosion by acids, and to be affected in opposite ways by gentle heating.

The fact that both cold-working and hardening prevent the jog is an indication that both induce some allotropic modification, but not that they induce one and the same modification; for if there were two allotropic modifications other than the joggable α iron, they would probably both resemble the other malleable metals in lacking the strange habitual jog of α iron, because of the very rarity of this property.

The differences between cold-worked and hardened steel are thus sufficient to raise serious doubt as to the identity of the changes which those operations induce; at the same time they are not greater than we should expect even if these operations do induce the same allotropic change, if we bear in mind that hardening also changes the condition of carbon, while cold-working does not: i. e., if we admit that the condition of carbon is of direct effect in hardening, there is no reason to deny the identity of δ and β iron.

4. How far are the effects of hardening due to carbon condition and how far to allotropy? Three lines of inquiry suggest themselves.

I, to compare the effects of cold-working with those of quenching; and to see how closely the intensity of hardening under different conditions agrees,

II. with the condition of carbon, and

III., with some specific measurable effect of cold working.

I. Such a comparison we have just made, finding striking points of resemblance and of difference. The data are insufficient. If carbon condition were the sole cause of hardening, yet its effects might happen to resemble and to differ from those of cold-working in the particular ways which we have observed.

II. and III. Pursuing these two lines of inquiry simultaneously, we consider first Charpy's results, then those of Osmond and of the author.

A. Charpy's experiments. Taking the jog in the strain diagram as a measure of the capacity for being affected by cold work, and hence of the quantity of α iron initially present, he quenches many like bars under different conditions, and determines the tensile strength and elongation as measures of the intensity of the resultant hardness; the length of the jog as a measure of the quantity of α iron; and the color carbon as a measure of carbon condition. Thus judged the carbon condition agrees well with the intensity of hardening, but the jog does not; indeed it disappears wholly before hardening has proceeded far, and the farther increase of hardening, though accompanied by corresponding farther change in carbon condition, is accompanied by no farther change as regards the jog, which remains nil.

The agreement between the carbon condition and the intensity of hardening does not, in this case, greatly strengthen the carbon theory, because a general agreement of this kind under usual conditions was conceded on all sides, and because M. Charpy's conditions do not set up a test case such as exists in those of M. Osmond and of the author.

Nor can the disagreement between the length of the jog and the intensity of hardening be properly construed as showing that β iron is not the cause of hardening, not only because there is no evidence that the length of the jog is a quantitative measure of the proportion of α present, but also because there are important cases in which there is evidently much α iron but without any jog at all. Hence in spite of the disagreement of the jog, the quantity of β iron may in M. Charpy's tests have been in every case exactly proportionate to the intensity of hardening, and hence β iron may yet, for all these tests show, be the true and only cause of hardening.

These cases, in which much α iron is present, but in which there is no jog in the strain diagram, are as follows:

A. When iron has been strained just past the jog, it still contains much α iron, because it can still be further strengthened and have its elastic limit further raised by further overstraining; but such further overstraining causes no new jog.

B. Strain-diagrams of normal irons and steels are reported by most competent and careful observers, some with absolutely no jog, others with a very disproportionately small jog. M. Charpy indeed has found no such cases; but other trustworthy observers have, which is enough. Indeed, Osmond and Werth went so far as to say that no high-carbon steels show a jog. Though here they overstated the case in the opposite direction, still they were probably right in the main, in the sense that the jog is often wanting and usually disproportionally small in the high-carbon steels. As these steels are greatly affected by cold work, and hence by definition must contain much α iron which the cold work changes to δ, this fact is further evidence of the untrustworthiness of the jog as a measure of the quantity of α iron.

C. Not only is the jog much smaller at a blue heat than in the cold, though the effects of distortion are here more intense than in the cold; but though there is no jog above say 400° C, yet distortion there produces some at least of its characteristic effects, indicating that at these temperatures the change from α to δ iron can occur without causing a jog;

* Abstract of paper read before the Iron and Steel Institute, August 20th.

whence it would not be strange if in quenched but imperfectly hardened steel still containing some α iron, like those of M. Charpy, this could be changed to δ without causing a jog.

Suggestion as to the Jog.—I suggest another view, viz., that permanent set, marking the change from α to δ iron, constantly deflects the curve in the strain diagram to the right; the jog is merely a capriciously varying fraction of this deflection, indicating that once this change is started, part of it may occur suddenly, causing a jog, and thereafter the rest of it may occur without causing a noticeable bend in the curve: and that in other cases it may from first to last occur so regularly as to cause no jog.

Experiments of M. Osmond and of the Author.—In the slow cooling of low-carbon steel different spontaneous retardations occur, revealing spontaneous evolutions of heat. The lower of these, a r_1, seems roughly proportional to the quantity of carbon present, the upper ones, a r_2 and a r_3, independent of it. Thus there is reason to suspect that the lower retardation represents the change in carbon condition, some of the upper ones the change from β to α iron. By quenching a series of bars, after cooling them slowly to different points in this retardational range, we should find out whether this were the case, for if it were, then the bars quenched after the upper but before the lower retardation should not be hardened, though their carbon should be in the hardening state.

M. Osmond and the author each made early experiments in this way, but with inconclusive results. The object of the present paper is to give the results of a series of such experiments lately made by the author.

Twenty-one like bars of steel of 0·21% carbon were thus quenched after like slow cooling from about 970° C. to different points in this retardational range; their tenacity and ductility were determined by tensile test; their hardness by scratching with a diamond: and their carbon condition by the Eggertz method. As the quenching temperature descended past the upper retardation called a r_2, the tensile strength of the quenched bars diminished abruptly, though the condition of the carbon did not change materially till the quenching temperature descended further to the lower retardation ar_1, and here the elongation of the quenched bars suddenly increased. This indicates that the upper retardation ar_2 is caused by the allotropic change from β to α iron, with which change the tenacity

ARC LAMP FOR MINE USE.

diminishes; and that the lower one corresponds to the change from hardening to cement carbon, with which the ductility is restored.

Admitting on the strength of these results the importance of the allotropic change, we have a further question, whether hardening be due directly to β iron alone, carbon acting only as a brake; or to a combination of β iron + hardening carbon, a hardening carbide of β iron, just as the properties of water are due neither to its hydrogen nor its oxygen, but to their union. I call this latter the "Carbo-allotropic" theory.

The strongest characteristic of hardened steel is its great cohesion, manifested by its hardness, and less trustworthily by its tenacity, for the latter is far more liable to be lessened by the stress necessarily induced by the sudden cooling than the hardness proper is.

Another striking characteristic is its glass-like brittleness.

From the non-magnetism of β iron and of manganese steel, this alloy is supposed to contain β iron; the strength of quenched practically carbonless steel is supposed to be due to β iron. The strength and elastic limit of these substances is accompanied by disproportionally little hardness and brittleness, when compared with quenched high-carbon steel. Only when the conditions are such that they ought to yield much hardening β carbide, do we get this characteristic glass-like hardness and brittleness. Manganese steel, indeed, is extremely ductile, and quenched nearly carbonless steel, even when extremely strong, is very ductile. This indicates that β iron by itself is a strong, ductile but only moderately hard substance; and that the special characteristics of hardened steel, its glass-like hardness and brittleness, are due to hardening β carbide.

Yet it is possible, though I think less probable, that these properties are due directly to β iron alone; that the reason why quenched high-carbon steel is harder than manganese steel and quenched low-carbon steel is simply that it has more β iron: that the reason why it is not stronger than they is that its tensile strength is interfered with by stress; that the reason why it is more brittle than they is that it has more β iron and because its stress intensifies the brittleness of this substance.

The carbo-allotropic theory may be formulated thus: Hardening is due chiefly to the preservation by sudden cooling of a hardening carbide of β iron of unknown and perhaps varying composition, often, especially in case of low-carbon steel, with β iron alone or otherwise combined; of which the hardening carbide gives much the greater hardness and brittleness; and, secondarily, to intense residual stress.

THE ESSEN COAL COMPANY'S ELECTRIC MINING PLANT.

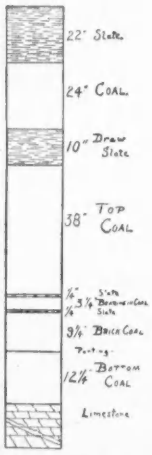
Written for the Engineering and Mining Journal by Timothy W. Sprague.

A few miles from Pittsburg, at a station on the P. C. & Y. Railway called Hazletine, is the largest electric power plant for coal mining purposes in the United States, and one of the largest in the world. It is installed to operate No. 2 and No. 3 mines of the Essen Coal Company, of which Mr. J. C. Dysart, of Pittsburg, is general manager, Mr. William Baldwin superintendent, and Mr. F. A. McDonald engineer.

Mr. Dysart made a thorough investigation of coal mining machinery plants, and came to the conclusion that where trouble developed with such plants, it was nearly always traceable to insufficient power. Accordingly it was decided in laying out this plant to allow an ample margin of initial power.

The power house itself is excellent in material and construction, and in its general design and arrangement. It is a building 130 ft. long by 56 ft. wide, steel frame with corrugated iron covering. It is set on a 15-in. brick foundation, and the ceiling of the dynamo and engine room is sheathed to prevent trouble from the moisture of condensation.

The west end of the building contains four Russell tubular boilers, each 60 in. in diameter and 18 ft. long, and containing 64 tubes 3¼ in. in diameter. The four are set with full flush fronts, in batteries of two each, but each boiler has its independent firebox and smoke stack, the latter 60 ft. high and 32 in. in diameter. Each boiler has its independent feed pipe, there being one feed pump for each battery, as well as an injector for each. The injector piping is so arranged that any boiler may be fed by either injector. The injectors are of the "World" type, and the feed pumps are the Hall Duplex, 8 in. × 5 in. × 10 in. each. One Cochrane feed-water heater is installed, sufficient in size to supply all four boilers simultaneously. The boiler-room extends along nearly 50 ft. of the length of the building, occupying the full width. The boilers are set with sufficient space in front for a coal storage supply, coal being thrown in directly from cars on a spur track running parallel with, and close to, the building, and leaving a wide space behind them for the feed pumps, feed-water heater, etc., which are reached through a passageway between the two batteries. In the space behind the boilers is also a pump furnished by the Hall Steam Pump Company for deep well work. The water supply or a part of it, at present, comes from these wells, one 129 ft. deep, one 160 ft. and one 180 ft. The water is raised on the compressed air system, the pump or compressor being a tandem machine with an 8-in. stroke. The water is pumped into two boilers, 3 ft. × 22 ft., which are used as supply tanks, being placed about 16 ft. above the feed pumps. They also serve as settling tanks and give sufficient head to fill the boilers, when no steam is available.



CROSS SECTION OF VEIN.

The engine-room, which occupies the central portion of the building through its full width is 63 ft. long. It contains three automatic Corliss engines, made by the Russell Manufacturing Company, Massillon, O., with cylinders 17 in. × 24 in., running at a speed of 153 revolutions per minute. They are set on brick foundations, and have 10 ft. fly-wheels. With the steam pressure usually carried, 90 to 100 lbs., these engines will develop something over 200 H. P. each. They drive three 150 kilowatt bi-polar generators made by the Link Belt Machinery Company, of Chicago, of the "Independent" mining type, wound for 275 volts and running at 510 revolutions per minute. These 200 H. P. generators are probably the largest bi-polar machines in use to-day. They are compound wound and provided with self-oiling bearings, ventilated armatures and other improvements. Space is left for a fourth unit of the same size which may be added when the work is further extended underground. The engines are set at 30 ft. centers from the generators, and 18-in. double endless Standard belts are used.

The station instruments are mounted on a marble switchboard also furnished by the Link Belt Machinery Company, which company took the contract for the entire plant, delivered and erected. The switchboard carries two Westinghouse circuit breakers, three Weston round pattern ammeters, one voltmeter of the same make, together with the field rheostats and usual switches. Wurts' lightning arresters are placed in each of the two mains leading to the two mines, and also at the bank mouths. One set of arresters is also placed on the long stretch of feeders between the power house and No. 2 mine. The trolley line running outside between the two mines is independently controlled by a single pole switch in the power house. This stretch is comparatively little used and is normally "dead."

The remainder of the power house building is divided into three rooms, a blacksmith and machine shop, a locomotive house and a store room, containing a lathe and some other power tools.

The locomotive room is large enough to hold on its two spur tracks the two 80-H. P. locomotives now in use. It is provided with pits for getting at the under parts of the machines and an over-head crane for lifting heavy parts.

The electric power generated is used at present for coal under cutting, haulage and lighting. The plant was started in June and is not yet in complete operation. It is intended to run 16 under cutters all of the "Independent" chain type; two 80 H. P. locomotives, one in each mine for the main haulage work, mules being employed to do the gathering, and to light the tipples, power house and underground workings as may be necessary.

The coal cutter, which the illustration shows, is driven by a 20-H. P. "Independent" motor wound for 220 to 250 volts, having but one field coil. The machine is 2 ft. high, 2 ft. 4 in. wide and 10 ft. 5 in. long when closed. It cuts to a depth of 5 ft. making the cut 3 ft. 6 in. wide and 3½ in. high. The frames of the machine are made of wrought iron and steel. The chain is cast steel, as are the sockets and socket pieces. The straps are drop forged and machinery steel pins are used for putting chain together. Cast iron is not used in any part subject to a strain. The motor is well protected except that its commutator and brushes are exposed. This is claimed to be an advantage but would seem to increase

the risk of damage by mechanical injury to a rather sensitive part of the machine. The control of the machine is easily accomplished by the movement of a lever through 180°. By this means the cutter may be fed forward, stopped feeding, or reversed without stopping the motor. Another good feature is an automatic stop on the withdrawal. Trucks are provided for transporting the machine from room to room.

The section through the vein in which these machines are working shows a little over 5 ft. of practically clean coal underlaid by limestone and capped by 10 in. of draw slate. On top of this again is 24 in. of coal, capped by 22 in. more of slate. The cutters are at present working in the bottom of the seam and the 24 in. of coal above the first layer of draw slate forms the roof. This has fallen down or been taken down on a large part of the main haulage ways, but is kept for the roof otherwiee.

The power house is located near the bank-mouth of No. 3 mine, about 1,400 ft. northwest from the bank-mouth of No. 2 mine. Later on another opening situated beyond No. 3 will very probably be equipped electrically, hence the placing of the power house in what will be a central location as the work progresses.

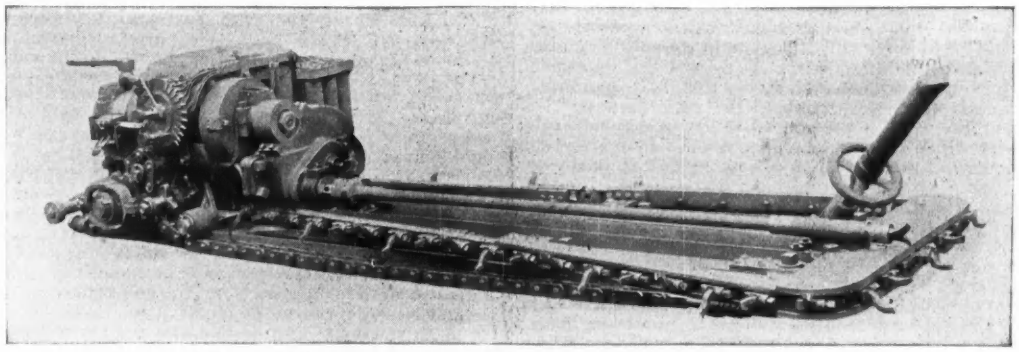
The locomotives, 42-in. gauge, are single-motor, four-wheeled machines of the "Independent" type. They run under load at about 8 miles per hour, exerting nearly 4,000 lbs. draw-bar pull, and are each capable of hauling 1,200 tons run-of-mine coal per day of 9 hours from the gathering points to the bottom of the slopes in their respective mines. These distances are, in No. 2 mine, 2,000 ft., and in No. 3, 3,300 ft. The ultimate length of the main haul by the electric locomotive in No. 2 will be 5,300 ft., and in No. 3,8,500 tt.

In No. 2 mine the grade is almost entirely against the loaded trips, averaging about 1%, though in places it runs as high as 2% for short distances. In No. 3 the grades are more nearly level, averaging slightly against the loads. In this mine the ninth right entry is wired for haulage to a distance of 1,800 ft. from the main entry. Along this side entry the grades are all in favor of the loaded trips, running as high as 3% in several places. This side entry is intended to take a large tonnage from the southwestern portion of No. 3 mine, thereby relieving the main haul way to a large extent.

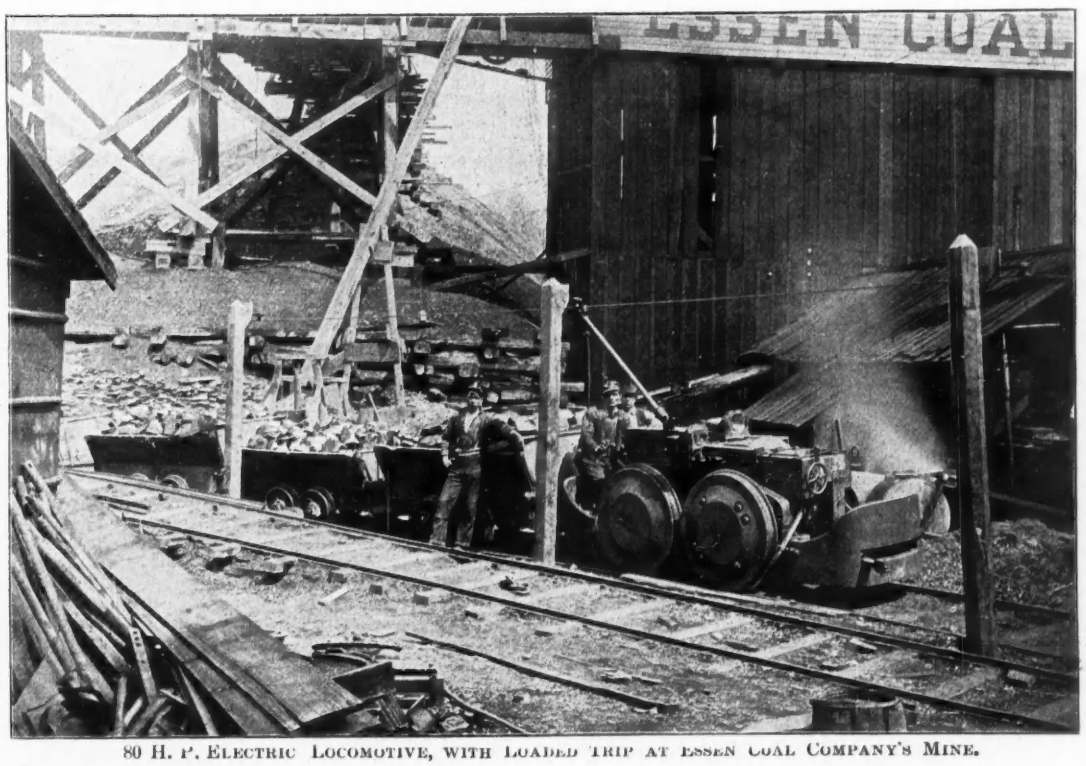
In both mines mules will be employed for the present in gathering trips and distributing empties and the locomotives deliver the loaded trips at the bottoms of inclines, from which a drum hoist and cable brings them to the tipples. This elevation of the coal is necessary to obtain proper tipple facilities above the level of the railroad, the seam lying some distance below this level.

The coal cutters are evenly divided between No. 2 and No. 3 mines, there being eight in each. In No. 2 mine their average distance from the bank-mouth is 2,000 ft., making the distance from the power house to the machines 3,400 ft. In No. 3 mine the distance to center of machine distribution is over 4,000 ft. At the present time in No. 3 mine 7 cutters are at work, 4 of which run 10 hours per day, the remaining 3 working double shift. In No. 2 mine, 2 cutters are running 10 hours per day, 2, 15 hours and a fifth, 20 hours.

The wiring, and in fact all the installation work, has been done under the supervision of Mr. D. N. Osyor, mining engineer for the Link Belt Machinery Company. The trolley wire is everywhere No. 00 wire, held by special "Independent" mine insulators. The feed wire for coal-cutting machinery is principally No. 0000, while some of the side entry and all the room wiring is No. 3, all bare copper. In No. 2 mine there is installed 14,500 ft. of No. 0000, 4,000 ft. of No. 00, 1,000 ft. of No. 1, 36,400 ft. of No. 3 and 2,156 of No. 8 (tie wire), all bare copper wire, while No. 3 mine contains 14,360 ft. No. 0000, 8,850 ft. No. 00, 500 ft. No. 1, 36,000 tt. No. 3 and 2,500 ft. No. 8, all bare copper. The only insulated wire used is in the leads to and from the switchboard and about the tipples and station, where lights are used. A ground return is used througout, the coal cutters being operated on the grounded circuit. The rails are all 40 lbs. per yard, with fish plates, heavily bonded and cross-bonded at suitable intervals. The return is reinforced from the bank mouths to the power house by three No. 0000 aerial wires from each.



"INDEPENDENT" CHAIN COAL CUTTER AT ESSEN COAL COMPANY'S MINE.



80 H. P. ELECTRIC LOCOMOTIVE, WITH LOADED TRIP AT ESSEN COAL COMPANY'S MINE.

The lighting of this plant is an especial feature. In each tipple, and at all switches, etc., in the mine where a light is advisable, the special "Independent" mining arc light has been placed. This peculiar form of lamp is shown in the illustration and gives an excellent illumination for underground work. The difference in the size of the carbon keeps the arc practically central, and although the lamps are run with a resistance in series, the loss is unimportant in a plant of this kind. In and about the power-house, shops, etc., 50 incandescent lamps of 16 C. P. each furnish illumination, run three in series. The locomotives are furnished with arc headlights with powerful reflectors.

Acknowledgments are due to Mr. J. C. Dysart, general manager; Mr. William Baldwin, superintendent, and Mr. D. N. Osyor, engineer in charge of installing apparatus, for data furnished at the mine; to Mr. F. A. McDonald, mining engineer of the company, for very complete mine maps and data; and to Messrs. Goodman and Pratt, of the Link Belt Machinery Company, for photographs.

NOTES ON MAGNETITE.—II.

Written for the Engineering and Mining Journal by William B. Phillips.

(*Continued from page* 149.)

The successful concentration of magnetic ores depends to a great extent upon the degree of magnetism possessed by the ore in question, and yet upon this matter we have very scant information. We do indeed know that the "heads" from the separator contain more iron than the "middlings" and that these in turn contain more iron than the "tails," but full analyses of these products are few and far between. The papers that have been read before the American Institute of Mining Engineers for the last several years on the magnetic concentration of iron ores are extremely interesting and valuable, so much so that I have had them bound in one volume. So far as concerns practical results they are perhaps all that could be desired up to that time, but they are singularly lacking in respect of chemical information. I should very much like to know just what was the ratio between the iron as ferrous and the iron as ferric oxide in the various classes of products discussed in these papers and how magnetic the heads and middlings were. Perhaps these questions are not so important when one is dealing with an ore that is so magnetic as to give profitable concentration irrespective of the ratio between the two oxides. But when it comes to the concentration of magnetic ore artificially prepared, with which I have had a good deal to do of late, the question is not unimportant. In magnetizing ore by means of producer gas the consumption of gas per ton of ore depends very largely upon the degree of magnetization which one may wish to confer upon the ore. For instance, if the amount of ferrous oxide in the ore thus prepared can be kept to a low limit it is readily perceived that 1000 cu. ft. of gas will do more work than if this limit were higher. If the amount of iron as ferrous oxide can be kept at, say, 10% with profitable concentration, why should it be increased to 20% unless the additional percentage enables one to concentrate to better advantage? It requires less gas to produce a magnetic ore with 10% of iron as ferrous oxide than it does to make one with 20%, and if the concentration of the 10% article is satisfactory why enter upon the larger expense involved in making the 20% article? I have had magnetic concentrates, prepared from non-magnetic ore, that gave as high as 25·80% of iron as ferrous oxide, and on the other hand I have had the same ore to give concentrates that had only 8·50% of iron as protoxide. The one seemed to concentrate about as well as the other. We come here upon a question not only of the greatest scientific interest but of great practical moment as well, viz., what is the lowest amount of iron as ferrous oxide that can exist in an ore without interfering seriously with magnetic concentration? What is the limit beyond which it is not profitable to diminish the percentage of iron as protoxide, on the one hand, and the limit beyond which, on the other hand, one cannot go without coating the ore with a thin layer of metallic iron impervious to the action of the reducing gas? I cannot return any very definite answers to these questions now; the subject is still under investigation, and a good deal of work must still be done before we reach a satisfactory position as regards this point.

In Dana's "System of Mineralogy," under the discussion of magnetite, he says that it becomes non-magnetic when exposed to the oxidizing flame. I do not propose to question the statement of so learned and accurate an observer, but at the same time I must say that doubtless this was the case with the specimen examined, although it might not be the case with every specimen of magnetite. I have heated small fragments of a native magnetite in a highly oxidizing atmosphere for several hours without destroying the magnetism, and have treated pulverized artificial magnetite at a full red heat with pure dry oxygen for two hours without affecting the magnetism, although the amount of iron as ferrous oxide was reduced one-third. If, however, the heat be just sufficient to bring the native magnetite to a good red color throughout, and the oxidizing flame be allowed to play over it, after a while it does lose its magnetism, but recovers it at very high heat. This I have confirmed with native magnetite, but artificial magnetite, made by passing hydrogen, or carbonic oxide, or both over the coarsely pulverized ore, I have been unable to deprive of its magnetic qualities by treating it at full red heat with oxygen, superheated vapor of water, or carbonic acid. There seems to be a possibility of imparting magnetism to non-magnetic hematite, which is of a very permanent nature. At any rate the ingredients, other than the reducing gases, present in producer gas seem to have no demagnetizing effect upon it, but do diminish the amount of iron as protoxide. This was a very important point to settle, viz., the possibility of demagnetizing ore already rendered magnetic. So far this does not seem to be possible under ordinary conditions, and we may conclude that the magnetism imparted to hematite by converting it into ferroso-ferric oxide is permanent. The amount of iron as protoxide can be diminished; in one experiment it was diminished from 19% to 12%, but the material was still magnetic and capable of concentration over a magnetic separator, as was demonstrated by actual trial.

There is one point, however, which deserves far more attention than has yet been given to it, whether the material be native or artificial magnetite, and that is the establishment of some standard of magnetism by which ores may be compared and the adoption of a standard method for the determination of this question. Here all is confusion and uncertainty. It will no longer suffice to say that such and such an ore is highly magnetic, or less so, or but feebly so. What is needed is some standard of comparison, some nomenclature of magnetism as exhibited by ores, through which it will become possible to grade ores magnetically and to convey to those who may wish to acquaint themselves with the subject some notion of what is meant by the term "magnetic ore." Let us suppose, for instance, that we have a piece of magnetic ore weighing one gram, and that it is attracted by an electro-magnet exposing one square centimeter of surface and excited by a current capable of decomposing water at the rate of one cubic centimeter of hydogen per unit of time, and that the attractive force is exerted through the distance of one centimeter on a glass plate. If now, a certain ore, which we may term A, showed under these conditions that it would move through a greater distance than one centimeter its magnetism could be expressed in mathematical language, and if another ore, B, moved through less than one centimeter it would be less magnetic than A, and the difference could be understood by any one studying the subject. Complete analyses of the ores should be made, particularly with reference to the amounts of ferrous and ferric oxides present, and any other circumstance that might influence the results. Some such idea could assuredly be carried out, the standard conditions determined and the various magnetic ores described in a nomenclature well apprehended by professional men. I have done some little work in this direction and am continuing it as rapidly as circumstances will allow, but it is best not to speak of the results until the details of the method can be given in full. Mr Woodbridge, in the letter previously spoken of, hints at something of the kind when he gives the weight of the particle, the amount of ferrous oxide present, the distance through which it was moved and the intensity of the current. It is very much to be regretted that this painstaking and accurate observer should not have pursued the matter farther and have given us the results of his work for it is along this line thpt we must expect to reach a satisfaction not at present enjoyed in the study of magnetic ores. In this connection it might be well to determiue if the degree of magnetism in crystallized magnetite, whether in the isometric system normally, or as pseudomorphs after siderite and specular ore in the hexagonal system, varies according to the axis of the crystal, and if so to what extent. Doubtless many investigations of the kind have been made, but they have not been accessible to me, and I cannot quote from them. It would be a real contribution to our available knowledge if some one with all the resources of a large and well equipped library would look all such matters up, and let us share with him in the results of his research. I commend this idea to some of the advanced students in metallurgy or mineralogy in the technical schools, and make no charge for the suggestion, provided they will promise to send me a copy of the paper! The trouble with many such matters is that those who are interested in them have not the time or the facilities for consulting libraries, while those who have the time and the means have not the interest. There is a great deal to be learned about the compounds of iron, and some of the time and money given to the metal in its manufactured condition might with profit be given to the ores from which the metal is made. The state of combination in which iron is held in its ores has a great deal to do with the cost of making the metal, the nature of the metal, and the uses to which it may be applied. This is an axiom as old as the manufacture of iron almost, certainly as old as the scientific making of pig iron, but like some other axioms we assume the truth of it without bothering ourselves much further about it. The famous Swedish iron is made from magnetic ores, the Cranberry iron, quite as good though not so famous, is made from magnetic ores, and so on down the list. The merest tyro in the iron trade knows that the nature of the ore influences the nature of the product to a very great extent, but as to why this or that is true we have scanty information.

In the next article I hope to describe certain experiments that have been made for the purpose of throwing a little light upon the magnetism of ores, both native and artificial, and to give a brief account of some work done on the preparation of hydrous magnetic oxides of iron.

(*To be continued.*)

MINING LEGISLATION AND THE CALIFORNIA STATE MINERS' ASSOCIATION.

In accordance with a resolution adopted by the executive committee of the State Miners' Association, Tirey L. Ford, chairman of the committee on legislation of the California State Miners' Association, has made a report of what has been accomplished in State and Congressional legislation. Prior to the appointment of the committee the following laws had been enacted by the State Legislature:

1. An act defining hydraulic mining and prescribing the conditions under which it might be carried on in California wherever and whenever the same could be carried on without material injury to the navigable streams or the lands adjacent thereto.

2. An act intended to supplement the foregoing act and to aid hydraulic miners in carrying on hydraulic mining without material injury to other interests.

This second act appropriated $250,000 to be used in the construction of restraining works for the impounding of mining debris, dependent, however, upon a like appropriation by the General Government.

The Congressional legislation has been as follows:

An act, commonly known as the "Caminetti Act," whereby a Federal Commission was created to supervise and control hydraulic mining in the State of California. The act contemplated an appropriation by the General Government to be used in the construction of restraining works, and further provided for the collection of a tax of 3% upon the output of such mines as made use of the works thus constructed by the General Government.

Up to the present time, however, no appropriation has been made by Congress for the construction of such works.

Since the appointment of the legislative committee the following legislation has been obtained:

1. The State Legislature at its last session passed an act which became a law, and which provided that no preliminary injunction should continue in force for a longer period than one year, except by consent of the parties, unless the cause be set down for trial upon its merits.

2. At the same session of the Legislature the committee secured the passage of an act permitting appeals from judgments and orders made in cases of contempt, but the committee regrets to report that this last measure met with an executive veto, and thus failed to become a law.

It may be stated in this connection that the legislation obtained at the last session of the Legislature was obtained without any expense whatever to the Miners' Association, and that obtained at the preceding session involved an expense of a little more than $400.

The committee has drafted two proposed measures for introduction in Congress. The first is intended to supplement the Caminetti act by an appropriation which will make the act of more general utility to the hydraulic mining industry.

The second is intended to provide a more reliable means of ascertaining the character of land in relation to its being mineral or agricultural in

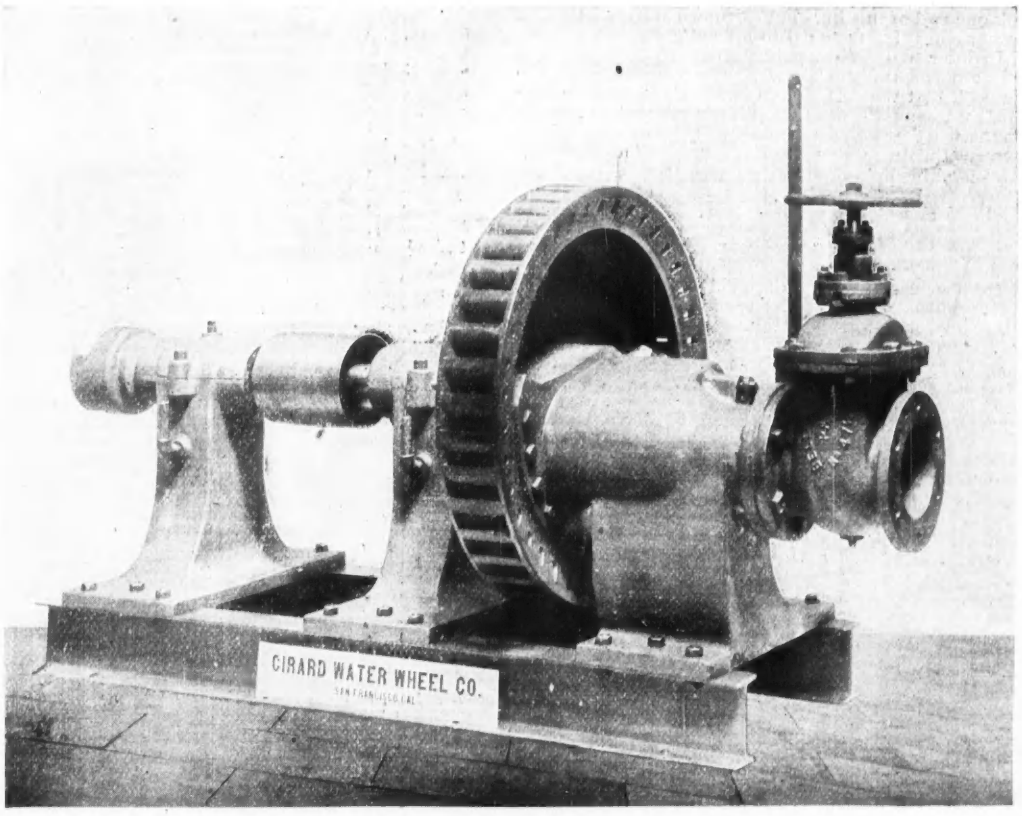
now available for requirement of present capacity of plant, and I consider the underground appearance as quite promising for next year's operations. The second, third and fifth levels south No. 3 shaft are now in course of character, and to transfer from the land offices to the local courts the determination of such controversies.

The chairman of the committee has been, and is now, in correspondence with the Congressional representatives from California with a view to properly presenting these proposed measures to them.

The committee has been careful to incur as little expense as possible, and, so far, has involved the Association in no expense save a small bill for printing copies of proposed measures to be introduced in Congress. The incidental expenses, such as clerical help, postage, stationery, office room, etc., have been met by the individual members of the committee.

THE GIRARD WATER WHEEL.

The manufacture of the Girard water wheel has lately been commenced on the Pacific Coast, the use of this wheel having been previously confined to Europe and the English colonies, with some examples in various parts of the Latin-American countries. This type of impulse wheel was invented a number of years ago by M. Girard, and by him made in many



THE GIRARD WATER WHEEL.

forms for all conditions of head and supply of water. It is claimed to be the most universally adaptable wheel made, being suitable for the highest pressures found in nature, and applicable also to low falls and large quantities of water. It is what may be called a "free running" wheel; that is, there are no running water joints to preserve. The shaft may be vertical, horizontal or inclined.

One of the chief advantages claimed for these wheels is that they may be regulated easily and without loss of water or pressure, Control is effected either automatically by a governor or by hand, and as the change occurs at the nozzle there is no throttling action, with its consequent reduction of pressure. This is a most important question where the supply of water is limited and where more power is needed than can be developed from the minimum flow.

The illustration shows a wheel which was arranged to couple directly to the arbor of a large circular saw. Part of the coupling is shown on the end of the shaft, and the other half is movable, so that the wheel can be disconnected from the saw and used to pull logs into the mill, or both operations can proceed at the same time. The small pulley on the wheel shaft has a belt running a countershaft which operates the log turner and jack. The wheel is cast in brass to withstand the shocks consequent upon the method of operation. The diameter is larger than would otherwise be necessary in order to give the correct speed, 600 revolutions per minute, to the saw. A hand regulator is attached, the operator controlling the supply of water as the work increases or decreases. The head in this case is 350 ft. and the wheel is made to develop 50 H. P.

The bearings are large and are made self-oiling. The I-beam base is used on account of lightness and strength, a desirable combination where transportation is difficult. The wheel was boxed in after being set in place, which method is the usual one in many localities.

These wheels are manufactured by the Girard Water Wheel Company, of San Francisco, Cal.

ABSTRACTS OF OFFICIAL REPORTS.

Wolverine Copper Mining Company Michigan.

The directors' report shows that during the year ending June 30th, 1895 the product of the mine was 1,992,940 lbs. of mineral, which yielded about 87·51%. or 1,744,070 lbs. of refined copper. The following is a summary of the year's business: 1,744,070 lbs. copper sold for $168,764; balance of interest account. $260; total receipts, $169,024. The working expenses at mine were $123,459; smelting, freight, cost of marketing copper and all expenses, $21,256, total cost, $144,715, leaving a mining profit of $24,309; deducting amount expended for construction, $2,608, leaves a net gain of $21,701. The surplus from previous year was $23,213: amount of assessment March 25th, 1895, $60,000; making in all $104,914; out of which was paid for lands purchased, $60,615, leaving surplus June 30th, 1895, of $44,299. The report further says: "The stamp mill has worked without interruption, and the results may be considered satisfactory, considering the low market price of copper that ruled during the year. In order to secure additional territory covering the belt which we are working, the directors have purchased 120 acres of land, and an assessment of $1 per share on the capital stock of the company was levied to provide means for payment for the land. The assessment has been paid in full, and the title of the land is now vested in the company. We have begun to extend our workings into the new territory for the purpose of opening it up, and of enlarging the operations or the company, as rapidly as it may be found advisable to do so."

The statement of assets and liabilities as of June 30th, 1895, is as follows: Cash in bank, $25,950; copper bills, $18,476; loans, $5,000; accounts receivable, $95; cash, fuel, supplies and accounts receivable at mine, $8,601; total assets, $58,122. The liabilities were: Agent's drafts, $72; indebtedness at mine, $11,966; accounts payable, $1,785; total liabilities, $13,823; balance of assets, $44,299.

The average price received for copper for four years was, according to the report, 11·30c. in 1891-92; 10·98c. in 1892-93; 9·83c. in 1893-94; 9·68c. in 1894-95. The total cost last year was 8·45c. per lb., showing a profit of 1·23c.

The mine expenses were made up as follows: Underground expenses, $85,006; rock-house, $7,701; stamp mill, $24,348; surface expenses, $6,404; total, 123.459: Shaft sinking cost an average of $12.56 per running foot; drifting, $5.97 per foot; stoping, $7.89 per fathom.

The report of Agent F. Smith says that No. 2 shaft was sunk 224·8 ft. and No. 3 was carried down 98 5 ft. The levels run from both these shafts showed variable results, but generally encouraging. A summary of the results of the year is as follows: Rock hoisted, 118,085 tons; rock stamped, 90,195 tons; product of mineral, 1,992,940 lbs.; product of refined copper, 1,744,070 lbs.; yield of rock treated 19·33 lbs., or, 0·966%; cost per ton of rock hoisted, $1.045; cost per ton of rock stamped, $1.369; cost per pound of refined copper at mine, 7·08c.: cost of construction per pound of refined copper, 0·15c.: total mine cost, 7·23c. The cost of smelting, freight and marketing product, including New York office expenses, was 1·22c., making the total cost per pound of refined copper 8·45c.

The Agent's report further says: "Ample reserves of stoping ground are

extension into new territory recently acquired. The opening work foots up as follows: Sinking shaft, 323·3 ft.; drifting, 1,913·4 ft.; total, 2,236·7 ft.: stoping, 5,446·0 fathoms.

"The quantity of rock hoisted from the mine was 118,085 tons. Poor rock discarded 27,890 tons, equal to 23·6%. Transported to mill and stamped, 90,195 tons, which gave us 1,992,940 lbs. of mineral, and at 87·5% yielded 1,744,070 lbs. refined copper, showing the contents of refined copper in one ton rock hoisted to have been 14·8 lbs., and in one ton rock stamped 19·33 lbs.

"We have added the past year to our plant three firebox crown tube boilers (one at hoisting and compressor works and two at mill), at a cost of $2,608, and are now provided with ample and economical steaming capacity. Also have replaced old hoisting drum at No. 2 hoist with a strong, heavy drum, well adapted for future requirements, and made some betterments to other parts of mine plant and dwellings—the cost of latter has been absorbed in regular running expense.

"We have not been subjected to very serious delays or accidents in our past year's operations, which have been quite regular and uniform. The force of employees has been free from fatal accidents."

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

SUPREME COURT OF PENNSYLVANIA.

Injuries to Minor Employee.—A boy under 14 years of age, was employed at a colliery to unhook one end of a sling chain from cars drawn back from the dump, the other end being fastened to an endless moving chain between the tracks. In order to detach the sling chain from the car, the moving chain had to be stopped and the boy was required to stand on the car bumpers. It was held, that where, through another's failure to stop the moving chain, the boy was unable to unhook the sling chain, it was for the jury to determine whether he was negligent in jerking the sling chain with one hand to get the necessary slack to unhook it with the other hand, which prevented his holding on to the car, instead of jumping from the car upon seeing that the moving chain was not stopped. Neilson v. Hillside Coal and Iron Company, 31 Atlantic Reporter, 1,091.

SUPREME COURT OF MISSOURI.

Liability for Injury to Miner.—Where the superintendent of a mine, knowing that stones had been continually falling down the surface of the mine at a certain place, and that it was more dangerous than other parts of the mine, put a miner at work immediately under it, without informing him of the danger, or without having the surface raked, the owner is liable for the resulting injury to such miner, who was ignorant of the danger.—De Weese v. Meramec Iron Mining Co., 31 S. W. Reporter, 110.

UNITED STATES SUPREME COURT.

Admissibility of Location Certificate.—In an action to determine an adverse claim to mining lands situated in Alaska, a location certificate made prior to the act of 1884, which gives to parties who have occupied, improved or exercised acts of ownership over a mining claim, the right to perfect their title thereto, is admissible as evidence in favor of the adverse claimant, notwithstanding that it is defective in that it lacks definiteness of description.—Bennett v. Harkrader, United States Supreme Court Reporter, 863.

EIGHTH UNITED STATES CIRCUIT COURT OF APPEALS.

The Rule of Safe Place.—The doctrine that a mining company can send its employees into the bowels of the earth to conduct the mining operations without making any provision for the proper supervision and inspection of the mine for the security and protection of the miners and the mine is unsupported by authority, is opposed to sound public policy, and is cruel and inhuman. Miners do undoubtedly take upon themselves all the ordinary and usual risks of the business. These ordinary risks are the risks incident to the business when it is conducted by the mine owner according to the customary and approved methods and with due regard to the safety of the miners. The neglect of the mine owner to discharge his duty in this regard is not one of the risks assumed by the miner, but is a negligent act on the part of the mine owner which renders him liable to damages to any miner injured thereby. It is the duty of the mine owner to provide a competent foreman or inspector to superintend the working of the mine; it is the duty of this foreman to direct the miners when and where to work; and it is particularly his duty to make timely inspection of the timbers and walls and roof of the mine in order that no harm may come to the miners from causes which a capable and diligent inspector would discover, and, when discovered, remove or cause to be removed. Where blasts are used in a mine, it is the imperative duty of the foreman to be diligent in discovering the effect of the blast upon the timbers, walls and roof of the mine, and to point out to the miners any dangerous conditions resulting from the blast, and to cause these conditions to be removed without delay, by proper appliances and with as little danger to the men as practicable. Mining is a necessary and permanent business, and must be conducted in an intelligent, orderly and systematic manner, not alone for the protection of the miners, but for the preservation of the mine itself. For these reasons, the business must have an intelligent and competent head. The necessity for this is imperative. When properly conducted, there is no pursuit in the country carried on with greater regularity, system and order, and with a stricter observance of rules intended to secure employees against accidents and property from loss or damage. The conditions confronting the miners from day to day, as a rule, are neither unexpected nor unusual. They are the common and expected incidents of mining, and when the foreman does his duty they are provided for and met without accident or any special danger. There is nothing hasty or haphazard about the business.—Finalyson v. Utica Mining and Milling Company, 67 Federal Reporter, 507.

The Use of Anyrite as a Lining for Furnaces.—Referring to the use of apyrite (see "Engineering and Mining Journal," Vol. LIX., p. 581), the Luxemburger Bergwerks und Saarbrücker-Hütten-Actien-Gesellschaft, of Burbach, in Rhenish Prussia, write to us that they have used apyrite for the lining of cupolas and steel ladles, and have found that the lining is standing use very well, at least as well as lining made of the best firebrick.

Large Lake Vessels.—The new steel ship Victory, the largest vessel ever launched on the Lakes, on a draft of 14·3 ft., recently took from Duluth as her first cargo 3,629 gross tons of ore. The vessel should easily carry 6,000 net tons on 18 ft. The steel steamship Yale, capacity 6,000 tons, on deep draft, and the steel steamship Penobscot, of the same size, were launched at Cleveland and West Bay City, respectively, recently. One will be in the ore and the other in the package trade. Each cost about $200,000.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

TUESDAY, AUGUST 13TH, 1895.

514,290. Ore-Concentrator. Frederick D. Darragh, Charles W. Betts and James A. Kilton, Denver, Colo., assignors to the Colorado Ore Concentrator Company, of Colorado. The combination consists of two drums, a gear on the shaft of one of them, and a belt moving around the drums; of a worm engaging the gear, a shaft extending loosely through the worm, a pair of cones, and means for approximating the cones.

514,319. Process of Extracting Aluminum Oxide. Axel W. Nibelius, Hacketts-town, N. J., assignor of two-thirds to John W. Mackay, Jr., New York, and William Ferguson, Brooklyn, N. Y. The process consists in mixing with the raw material the sulphate or bisulphate of an alkali, then subjecting the mixture while heated to a petroleum air-flame, condensing the acid, utilizing the condensed acid for lixiviating the alumin and finally precipiating the alumina.

514,366. Disintegrater or Crusher. Milton F. Williams, St. Louis, Mo. Comprises a suitable frame, series of rotary hammers, a rectangular metallic box supported by the frame, a suitable cover and hopper for the box, a series of metallic bars or slats extending across the box.

514,424. Mining Machine. Joseph L. Beury and John T. Cressey, Beury, W. Va. In a mining machine a main frame, a motor, a longitudinally movable stock or beam, a main auger shaft, oppositely rotating cutting disks, and a pair of chains moving in opposite directions and provided with cutters and scrapers.

514,454. Water-Gas Generator. Reinhold C. Boeklen, Brooklyn, N. Y. The combination consists of a cupola, and two lower chambers separated by two vertical cross-walls, and having a vertical flat three-sided oil heating chamber, and having through its narrow sides a vertical row of horizontal oil-heating pipes connected alternately, one pair with the following pair above.

514,456, 514,457, 514,458, 514,459. Hydraulic Air Compressor. Joseph H. Champ, Cleveland, O., assignor to the Bishop & Babcock Company, same place. The combination consists of an air cylinder and a water cylinder, pistons respectively in the cylinders, and connected together, a main controlling casing between the ends of the cylinders, a main valve in the casing operated by and controlling the piston-actuating fluid, and primary valve mechanism, constructed to be operated by the movement of the pistons and to control the fluid actuating the main controlling valve.

514,460. Dredging Apparatus. Caleb G. Collins, Woodbury, Alburtis C. Hilsinger, Killawog, and Calvin A. Stevens, New York, N. Y.; said Collins and Hilsinger assignors to said Stevens. The combination consists of a vacuum chamber, of a spoil-receiving suction pipe connected to the chamber, and a valve for releasing a portion of the charge of spoil admitted through the receiving pipe, thereby avoiding the effect of impact due to the momentum of the charge.

514,498. Mine Trap-Door. George Bonenberger, Evansville, assignor to Jay H. Keyes, Terre Haute, Ind. A framework supported across the track in the entry of the mine, a roller mounted on the top thereof, a flexible curtain connected to such roller, a pulley device at each side of the door at a suitable distance, a pulley on the door frame and on the end of the roller, and a pivoted lever at each side of the door connected to a wire or cord which passes around the pulleys, each of such levers lying in the path of passing cars, whereby the door curtain will be raised and lowered on the passage of a car through the entry.

514,516. Method of and Apparatus for Continuous Distillation of Crude Hydrocarbons, etc. Odilon Perrier, Paris, France. The process consists in subjecting an inclosed current of the liquid at one point in its flow to agitation at a comparatively low temperature, in such a manner as to expose the liquid in thin films, then exposing the liquid, at a farther point in its flow to heat sufficient to vaporize it, and finally leading the hot vapors so generated back to the point where the agitation is proceeding.

514,548. Air Compressor. Howard A. Pedrick, Philadelphia, Pa., assignor of one-half to Weston J. Hibbs, same place. The combination consists of an air pump, a shaft for driving the same, devices for operatively connecting the shaft to or releasing it from a primary driving shaft, a main cylinder, a piston for operating the devices in either direction, and an automatically controlled valve actuated by variations in the air pressure for admitting pressure to either end of the main cylinder.

514,551. Apparatus for Stopping Tapping Holes of Furnaces. Samuel W. Vaughen, Coopersdale, Pa. A tube adapted for receiving clay or other refractory material, a piston or plug fitted therein; means for moving the piston within the tube, in combination with a removable abutment adapted to engage with the aforesaid apparatus to resist the reaction of the same in operation.

514,561. Dumping-Car. Cyrus W. Bridegum, Hainsport, N. J. Consists of a truck, the car body pivoted thereon and having a movable section with arms pivoted to the car body and carrying the lever, one end of the lever being connected to the movable section, and an arm secured to the opposite end of the lever and to the truck.

514,580 Furnace for Manufacturing Yellow Prussiate of Potash. Siegmund Halla, Austria-Hungary, assignor to Anton Raudnitz, same place. The combination consists of a fireplace, a melting pan, a flue leading from the pan to the chimney and containing absorbtion chambers with a fan and a sliding door in the flue to regulate the speed of the gases from the absorption chamber.

514,584. Process of Obtaining Metallic Lead and White Lead Pigment from Lead Sulphides. Alice Macdonald, London, England. The process consists in the blowing air or oxygen over or through fused lead sulphide, thereby producing a reaction, blowing additional air or oxygen into the volatile compound and thereby converting it into a fume of nearly pure lead sulphate mixed with sulphur dioxide, and finally heating lead sulphate.

514,593. Hydrocarbon Gas Generating Heater. Casimer Rutkoskie, Benton Harbor, Mich., assignor to Robert Riley, same place, and George Herman, St. Joseph, Mich. The combination with the shell having an air inlet in its base, the mixing chamber supported in the shell above the base and opening into the latter, and the feed pipe for liquid hydrocarbon, of a kindling pan in the base, into which the feed pipe discharges, a slide valve covering the air inlet, and a door in an opening in the side of the shell connected with the slide valve to move it by opening and closing the door.

514,607. Apparatus for Washing and Sorting Granular Materials. Peter Batsche, Dusseldorf, Germany. Comprises a sieve with sunken bottom and removable rim, and a table having several openings, and a rim at one of the openings for supporting the sieve.

514,610. Process of and Apparatus for Extracting Ores by Electrolysis. Edward M. Clark, Butte, Mont., assignor of two-thirds to Edwin M. Clark and the Western Iron Works, same place. The process consists in mixing the ore with a solution of chloride of sodium and then passing the mixture into the presence of separated bodies of mercury in a regular succession, and at the same time subjecting it to the action of electricity, each body of mercury acting as a cathode.

PERSONAL.

Mr. Walter Hovey Hill, mining engineer, of Grangeville, Idaho, has gone to Warren, Idaho, to examine some gold quartz properties for Eastern capitalists.

Mr. Alexander Blue, director of the Ontario Bureau of Mines, has gone to the Rainy Lake and Seine River gold region on a visit of inspection to the mines there. He will be away for several weeks.

Mr. C. S. Otjen, superintendent of the Illinois Steel Company's plant at Bay View, Wis., has resigned his position. He will be succeeded on September 1st by Mr. George L. Reis, of Cleveland, O., who is now commissioner of the Merchant Bar Iron Association.

Mr. George W. Starr has been appointed general manager and consulting engineer for the Barnato mines, Johannesburg, Transvaal. All of the Barnato Bros.' mining interests will come under Mr. Starr's direction and control. This is in pursuance of a plan formulated by Mr. B. I. Barnato, whereby all the holdings of his firm will be under the superintendence of one mining department, which will have its offices in Johannesburg. Mr. Starr went to Johannesburg from California two years ago, and his work in South Africa as manager of the Kimberley-Roodepoort and New Primrose mines has been successful.

Mr. E. Cumenge, the well-known French mining engineer and consulting engineer of the Boleo Copper Mines, of Mexico, sailed from New York, August 17th for France on his return from the Boleo mines. Mr. Cumenge has the satisfaction of seeing this company become very prosperous. From a large deficit each year from its organization, it last year earned enough to pay off all its floating debt, and is expected to earn net 4,000,000 francs during the present year. The stock, 500 francs par, has gone up from about 300 francs to 1,300 francs within a little more than a year, a very satisfactory result to Mr. Cumenge, as well as to the other shareholders.

OBITUARY.

John McNeal, one of the oldest iron founders in New Jersey, died at Burlington, N. J., on August 18th, aged 87 years.

John D. Imboden, the famous Confederate cavalry general, died on August 15th, at Abingdon, Va. After the war he engaged largely in mining and railroad enterprises. He was seventy-five years old.

Joseph Knighton, manager of the Staveley Coal and Iron Company, died suddenly at Barrowhill, England, on August 6th, aged 44 years. He was the successor of his father, who held his position at Staveley, England, for 30 years.

Marshall M. Tidd, a well-known civil and hydraulic engineer, died suddenly at his home in Woburn, Mass., on August 20th, aged 68 years. He had charge of various works throughout this country and Mexico, but most of his work has been done in Maine, New Hampshire and Massachusetts. He was a member of the Boston and American Societies of Civil Engineers.

SOCIETIES AND TECHNICAL SCHOOLS.

American Institute of Mining Engineers.—The Secretary of the Institute has issued Circular No. 3, of 1895, informing the members that the 69th meeting of the Institute will be held at Atlanta, Ga., beginning October 8, 1895. Prof. W. H. Emerson, Georgia School of Technology, Atlanta, is the Secretary of the local committee. The provisional programme, subject to change of details hereafter, is as follows: October 8th, visit to the Exposition and in the evening opening session and informal reception; October 9th, sessions morning and evening, and Exposition in the afternoon; October 10th, Mining Engineers' Day at the Exposition, preceded, if necessary, by a morning session; October 11th, visit to granite quarries and barbecue at Stone Mountain; October 12th, visit to marble quarries in Pickens County, on line of Marietta & North Georgia Railroad, thence to Chattanooga, where the 13th and 14th will be spent; October 15th, to Asheville, N. C., and 16th to Washington.

Mr. E. W. Parker, U. S. Geological Survey, Washington, D. C., is in charge of all matters connected with transportation, and correspondence on that subject should be addressed to him and not to the secretary's office. Excursion tickets to the Atlanta Exposition will be on sale after September 15th. The 20-day ticket, which will be sold at 10% above the price of one through fare, will be the most convenient for persons attending this meeting, who do not go by the special train. By the courtesy of the Southern Pacific Railway Company, a special train will convey members and guests of the Institute from Washington to Atlanta, and from Atlanta, via Chattanooga and Asheville, back to Washington, free of charge for railway fares. This arrangement does not include free transportation on any other trains. This special train will consist of Pullman cars; its capacity will be limited to 200 passengers, and Mr. Parker will engage the necessary cars and reserve berths in them. The train will leave Washington on October 7th, at 7 p. m., and arrive at Washington on its return on October 16th. During the interval the Pullman cars will be at the disposal of the party, and a dining car, in which meals will be served at $1 each, will also remain with the train, but stops will be made at railroad eating-stations, to accommodate those who do not use the dining car. In Atlanta the train will be sidetracked near the Exposition, and available for lodging to those who do not wish to go to hotels. The cost of this train will be $22 to each passenger occupying one berth. In order to secure places in it, notice, accompanied with remittance of the above amount, must be sent to Mr. E. W. Parker not later than September 10th. Persons desiring hotel accommodations in Atlanta should address the Secretary of the Local Committee, the earlier the better. Mr. Parker will try to arrange for the accommodation of sufficiently large parties from New York, Philadelphia, etc., so that they can take Pullman cars at those points for the through trip without extra charge. Railroad fares will have to be paid in all cases to Washington.

American Association for the Advancement of Science.—The Association will hold its next annual meeting at Springfield, Mass., next week. The programme, as arranged, follows: August 26th.—Meeting of the Society for the Promotion of Agricultural Science begins and continues two days. Prof. William Saunders, of Ottawa, Canada, president; Prof. William Frear, State College, Pennsylvania, secretary. August 27th, and 28th, the following societies will be in session: Botanical Society of America, Prof. Charles R. Barnes, of Madison, Wis., secretary; American Mathematical Society, Dr. George W. Hill, president; Prof. Thomas S. Fiske, of Columbia College, secretary; Geological Society of America, Prof. N. S. Shaler, of Harvard, president; Prof. A. L. Fairchild, Rochester, secretary; Association of Entomologists, Prof. J. B. Smith, New Brunswick, president; C. L. Marlatt, Washington, secretary; American Chemical Society, Edgar F. Smith, Washington, president; Prof. Albert C. Hale, Brooklyn, secretary.

The Council of the Association will meet on Wednesday. The meetings of the association begin on August 29th with a general session. Meeting called to order by the retiring president, Prof. Daniel G. Brinton, of Media, Pa., who will introduce the president-elect, Dr. Edward W. Morley, of Cleveland, O. Thursday afternoon will be occupied with the addresses of the several vice-presidents of the association before their respective sections, and the evening with the annual address of the retiring president, D. G. Brinton, on "The Aims of Anthropology," followed by a reception in the City Hall.

On September 2d, the Society for Promoting Engineering Education will meet simultaneously with the sessions of the A. A. A. S. George F. Swain, of Boston, is president, and Prof. J. B. Johnson, secretary.

INDUSTRIAL NOTES.

Carrie furnace No. 2, of Braddock, Pa., has been blown in, after four months' idleness, and employs 100 additional men.

The Atlantic Iron Works, in Greenville and Sharon, Pa., resumed on August 19th, after a two years' idleness. Both mills employ about 1,000 men.

No. 2 Blast furnace, of the E. & G. Brooke Iron Company, of Birdsboro, Pa., was lighted on August 20th. The furnace produces 450 tons a week and employs over 100 hands.

By an explosion in blast furnace H, at the Edgar Thomson series of the Carnegie Steel Company, at Braddock, Pa., on August 20th, six men were instantly killed and eight fatally injured.

The coal combine, composed of the leading coal operators of Alabama, Tennessee and Kentucky, met at Knoxville, Tenn., on August 14th, to complete its organization. There were about 75 representatives present.

The new mills of the Grand Rapids Pulp and Paper Company, at Bearin, on the Wisconsin River, are being rapidly pushed forward. The company is constructing a dam, excavating a large mill pit from solid rock and erecting large substantial brick buildings; it has contracted with James Leffel & Co., of Springfield, O., for 15 of the large "Samson" turbine water wheels, which will be in position in November.

The C. W. Hunt Company, of New York City, has issued an interesting pamphlet on "Coal Handling for Steam Generation." It contains descriptive articles of the various installations made by the company at the plants of large steam users. The book is very handsomely illustrated and shows not only the designs of the machinery supplied by the Hunt Company, but also general views of coaling stations and hoisting plants. Every concern which has use for coal and ash conveying machinery should write to the C. W. Hunt Company for this catalogue, which is No. 9,506.

Mr. W. Ainsworth, of Denver, Colo., the sole manufacturer of the Brunton's pocket miner's transit, has just received an order for 50 of these instruments, to be sent to England, where considerable attention has been drawn to it by its usefulness and compactness, there being nothing in the market there which excels it. Mr. Ainsworth has been unable lately to supply the demand for them and will at once take steps toward manufacturing them on a larger scale. The transit was described and illustrated in the "Engineering and Mining Journal" of May 18th, 1895.

Advices from Pittsburg state that there will be no window glass workers' strike. The Chambers Glass Company will agree to the terms of the workers, and, as it practically controls the situation, the other manufacturers will follow its example. At the meeting of the wage conference committees, on August 21st, a settlement on a basis of a 10% advance was agreed upon. The campany's action is of especial interest to 25,000 window glass workers throughout the country, as it means a settlement oe the wage question at a substantial advance and the early resumption of work in all the factories.

We have received from the Risdon Iron and Locomotive Works, of San Francisco, Cal., Catalogue "No. 7," of milling machinery adapted to the milling and reduction of silver and copper ores. This is the third edition of the catalogue which this well-known firm has published. It contains much valuable information and it has the advantage of being the latest publication of its kind. The catalogue, which is a book of 130 pages, is copiously illustrated, and in addition to the important descriptive matter contains valuable data in the way of rules and tables of use to engineers and miners. It is well worth writing for.

The Lidgerwood Manufacturing Company of New York has in the press a new pamphlet entitled "Travelling Cableways, and Some Other Devices Employed by the Contractors on the Chicago Drainage Canal." This book will be one of the well-known sketch book series, same size as the previous issue, and will contain 72 pages, 36 full page illustrations, and is intended particularly to illustrate the multiplicity of uses to which the Lidgerwood engines can be placed. The travelling cableways, 20 of which have been sold and used on the Chicago Drainage Canal, occupy the larger part of the book. It will be for free distribution and those who desire a copy should apply to the Lidgerwood Manufacturing Company at 96 Liberty St., New York.

MACHINERY AND SUPPLIES WANTED

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondent who desire to purchase American goods, and shall be pleased to furnish them information concerning goods o any kind, and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

Lake Superior Ore Shipments.—Ore shipments from all upper lake ports—Duluth, Superior, Two Harbors, Ashland, Marquette and Gladstone—to August 1 aggregate 4,983,270 gross tons, as compared with 3,600,320 gross tons on August 1st, 1894. These figures represent a movement thus far this season of about 1,600,000 tons a month, and an increase to date of 1,382,950 tons.

ALABAMA.

Cleborne County.

(From our Special Correspondent.)

Arbacoochee Mines.—Prospecting work is being vigorously carried on in Sections 6 and 7. The results so far show that a narrow belt of gneiss extends diagonally through a portion of these sections. The work done consists of numerous trenches cross-cutting the formation both to the northeast and southwest of the original discovery. In two of these, located, one about 1,000 ft. and the other about 1,700 ft. north 50° east, lenses of auriferous quartz have been exposed which have only been sunk on to a depth of about 12 or 15 ft, and the superincumbent country rock stripped off, and the quartz taken out for several feet along the incline of the dip. The line of strike of the ore body is very irregular, and the dip at the points where the quartz is first encountered, and for several feet on the incline of the dip, is at an angle not to exceed 18°. The extreme thickness of any one of these lenses is not over 20 in. The ore taken from the pits contains a percentage of sulphurets, and the best will probably run 75% free milling. Many pieces of the quartz show free gold visible to the naked eye. It is impossible to give at this time any average value of the ore taken out, because it has all been stored, and none of the assays has been made public. These occurrences were discovered on the east half of section 6, which was bonded by Mr. T. H. Aldrich, of Birmingham, Ala. Associated with the gneiss, he has also found a large body of sugary quartz with its line of strike parallel, or nearly so, with that of the lenses. This quartz has never been prospected at any depth, but pieces of the outcrop show value by panning. This ore body is bedded conformably with the formation. It can be traced by the outcrop for a considerable distance across the country, and will apparently average about 4 ft. in thickness. It occurs near the contact of the semi-crystalline slate (Talladega) and the gneiss. Mr. Aldrich will prospect this ore body at once.

To the southwest of the original discovery, known

as the Marble pit, although several pits had been sunk along the line of strike, no further discoveries had been made at the time of my recent visit. An attempt was being made to expose the ore body at greater depth by sinking a shaft about 30 ft. south of the original pit. Sufficient depth, however, had not been attained to crosscut the ore body on its dip, even if it should prove to maintain continuity in that direction. The Chattanooga syndicate which purchased the option from the original lessees had several men employed in prospecting at different points throughout the 200 acres. Another ore body occurs to the southeast and in a semi-crystalline garnetiferous slate formation instead of the gneiss. Its line of strike is approximately parallel with that of the series of lenses of rich quartz, but sufficient work has not been done to warrant the expression of any opinion regarding it.

Randolph County.

(From Our Special Correspondent.)

Pinetucky Gold Mining Company.—This company held a meeting on August 15th, at Edwardsville, Ala., to devise ways of obtaining money to pay off the indebtedness. Mr. D. R. McLaughlin, president, of Paw Paw, Ill., together with several of the other Illinois stockholders, was present. I am informed that an agreement was made on the plan of reorganization, by which the creditors of the company will accept preferred stock carrying 6% interest in lieu of their claim, either as mortgages or judgments. A lease was made to the Fair Mining & Milling Company, representing a Wisconsin and Illinois syndicate, which will proceed at once to operate the mine and mill. This company has been prospecting the property for some months past, and has sunk 3 diamond drill holes at distances of about 80 ft., 150 ft. and 250 ft. to the east, and on the incline of the dip from the older workings. The farthest one of these holes is at the point where a working shaft was started some years ago in the mill-house, but abandoned when a depth of about 50 ft. had been attained. In sinking this hole with a diamond drill the core showed that at a depth of 55 ft. the formation had changed from a garnetiferous mica-schist to a granite. These formations were encountered alternating with each other to a depth of 205 ft., when work was abandoned without any indications of the ore body. In the second of the diamond drill holes sunk between the mill-house and the old workings, granite was encountered at 60 ft., and to a depth of 130 ft. the granite alternated with the garnetiferous mica-schist with no indications of the lode. In the third, 80 ft. east of the old workings, the granite was struck at a depth of 47 ft., and at 70 ft., after passing through about 4 in. of white feldspar below the granite, the ore body was struck, the core showing it to be about 1 ft. thick. Below this sinking was continued, and the stratum immediately below it was found to be 4 ft. of soft matter, the core of which was lost. Next garnetiferous mica-schist was struck. In the older workings no granite has ever been encountered. The enclosing walls of the ore body were garnetiferous mica-schist. The lessees will sink a working shaft at the point where the last diamond drill hole was sunk. This will give them 80 ft. of virgin ground to stope.

ALASKA.

Yukon River Placers.—But little has been heard from the Yukon country this year although many miners went up there last spring and a few remained in the country through the winter. Recently a shipment of bullion amounting to $4,000 was received at Sitka, but no definite accounts have yet come to hand and it will be a month yet before the first returning miners are due at Sitka or Juno.

ARIZONA.

Yavapai County.

Crowned King.—This mine, in the Bradshaw Mountains, 40 miles from Prescott, has been bonded for a sum reported to be nearly $500,000 by the owners, Place, Sheckes and Harrington, says the Arizona "Kicker." These gentlemen received a cash surety of $10,000. The purchasers were the H. B. Chamberlain Company, of Denver, Colo. The new owners will place improved machinery at the mine and will employ a large force of men.

CALIFORNIA.

New Hydraulic Mines.—Permission to mine by the hydraulic process was yesterday granted by the Debris Commissioners to the Sailor Boy mine, owned by Michael Cortez, near Brendy City, Sierra County. Permission to build restraining dams was granted to T. P. Kirkham, owner of a mine near Blue Tent, Nevada County, and to the owners of the Lost Camp mine, near Blue Canyon, Placer County.

Calaveras County.

(From Our Special Correspondent.)

Ford.—This mine, near San Andreas, has started up. The new shaft will be sunk 200 ft. and a crosscut run.

Banner.—This gravel mine has been bonded to E. N. Lindsay, W. G. Moore and J. A. Rigby, of San Francisco, who put a force of men at work preparing the ground for a 10-stamp mill.

Mariposa County.

(From Our Special Correspondent.)

Hite.—This mine, northeast of Mariposa, is being pumped out, and the company has put in a duplex compressor for pumping, drilling and hoisting. New hoisting works are being erected, and the 40-stamp mill is being put in working order

Nevada County.

(From Our Special Correspondent.)

Cadmus.—This mine, on Deer Creek, near Nevada City, has made arrangements to put in a pumping and hoisting plant with a capacity to sink 2,000 ft. A vertical shaft will be sunk.

California Gold Mining Company.—At the annual meeting of the stockholders of this company, held in Salt Lake City, Utah, last week, the following directors were elected: A. S. Bower, J. M. Dart, F. A. Vincent, J. E. Shettle and W. A. Byers. Of these Mr. Bower will be president: Mr. Dart, vice-president; Mr. Vincent, treasurer, and Mr. Byers, secretary. This company owns and operates a group of 7 gold claims. The two tunnels on the vein, one of which will give a depth of 300 ft. on the ore body and the other a depth of 400 ft., are being pushed forward rapidly. In the upper channel there are 3½ ft. of ore, while in the lower it has increased to 8 ft., says the Salt Lake "Herald." The average value of the ore being taken out is in the neighborhood of $25.

Providence.—This mine, on Deer Creek, one mile from Nevada City, has two veins about 500 ft. apart, designated as the front and the back veins, the former on the contact and the latter in the granite, and they are connected by a crosscut at the 1,250-ft. level. The shaft on the front ledge is down 1,850 ft., the vein averaging 7 ft. in width. The back ledge has been stoped up from the 1,250 ft. to the 600-ft. level, and the sulphurets in both ledges average $37 per ton from the surface to the 600-ft. level, and $62 per ton from the 600 to the 1,250-ft. level. From the 1,250 to the 1,800-ft. level, on the front vein, the sulphurets average $94, showing an increase in richness with depth. From the 1,800 level a crosscut has been run through a slate formation toward the back vein 350 ft., at which point an entirely new ledge has been struck, which is from 1 to 5 ft. wide, with a supposed backing of 1,800 ft.; assays average $85. This ledge has been followed up about 200 ft., and is found to widen as they advance. A few years ago this mine was supposed to have been worked out, and at the 600-ft. level it was abandoned. The mine is now well equipped with a 40-stamp mill, Frue concentrators, chlorination works, etc., and 150 men are employed.

Placer County.

Both quartz and gravel mining are very active in this county, according to President Neff, of the State Miners' Association. Surveys are being made for a wagon road from Towle's station, on the Central Pacific to Humbug canyon on the north fork of the American River, where the Pioneer Mine is located. Goodall, Berkins & Co., the Dores and several other companies are opening quartz mines in that section. Tunnels are being run and mills will soon be erected. Though of low-grade ore, says Mr. Neff, the veins are large. On the Forest Hill divide the owners of the Hidden Treasure are opening a new gravel mine, and have run a channel of between four and five miles. At the Red Point the French Company is doing well, and a large number of claims are being developed in the neighborhood. On the Iowa Hill divide the Morning Star and the Big Dipper are each employing about 60 men, and bullion in quantities is being taken out. Activity pervades on Dutch Flat divide, where Doolittle & Co. are pushing developments, with fair prospects, while H. K. Deverley is running a tunnel at Shady Run. Mr. Neff reports that the north fork of the American River has been located as far up as river mining is possible, and that gold escaped from the hydraulic mines has been concentrated in some places in sufficient quantities to pay good wages for working.

Riverside County.

Gipsy.—A strike is reported at this mine, in the Virginia Dale district, about 100 miles southeast of San Bernardino. The small streak of ore which had been followed from near the surface was continued to a depth of 60 ft., when the ore body changed to about 8 in. in thickness and of a rich, free-milling iron quartz. Drifts 25 ft. both ways have been run, and the vein continues to grow in size and richness.

San Bernardino County.

(From Our Special Correspondent.)

Desert Queen.—The result of a 4 days' run with the new 5-stamp mill at this mine north of Indio, was over $4,400. The ore averages about $250 per ton. There is enough on the dump to run the mill for a month at full capacity. The ledge is about 15 ft. wide. Five more stamps have been ordered.

Holcomb Creek Mining Company.—Development work on a large scale is doing on the Deck, Valentine, Rowell, Florence and Cowan mines owned by this company in the West Holcomb Valley District. Assays run high in gold. The work is done by Arrastras, but arrangements are being made to put in improved machinery.

COLORADO.

Clear Creek County.

Seven-Thirty.—R. E. Nelson & Co., lessees on this property, have tapped the O'Connell winze on the 210 level, for which they have been driving through 381 ft. of hard ground for 15 months. Ore is exposed in the drift for 210 ft., and is continuous in the heading. Hedburg & Co., on the level above, have from 18 in. to 2 ft. of solid ore that mills 353 oz. silver in one class.

(From Our Special Correspondent.)

Freeland Mining Company.—The new company in charge of the Freeland mine has been sinking a winze from the first level in the hope of finding the rich ore body lost by the old company. At a depth of 40 ft. mineral is openly cut and it is believed that the old body of ore has been found.

Gold Dirt.—Messrs. Hanchett & Himrod, of the Lamartine mine, have taken a three years' lease and bond on this property and are sinking a shaft 75 ft., when another level will be commenced. The mine is one of the old producers and has considerable underground workings. The streak is iron pyrites carrying gold.

Newhouse Tunnel.—Several lodes have been cut, but the management claims they carry no values. However it is believed that these statements are misleading, for two rich streaks of mineral have been cut. The company has not drifted on the veins, but is pushing work on the tunnel, which is now one mile into the mountains.

Shafter.—A winze is being sunk from the Shafter to the Waterbury adit on an exceptionally good showing of copper-bearing ore.

Silver Age.—The water in the shaft and lower workings has been pumped out and the lessees are beginning work. The showing in the upper ground has been very good, the ore being a lead, carrying silver and some gold. The company could not work the mine at a profit, but the lessees are making it pay the owners a good royalty.

Stanley.—The development work in this property is making good headway, and the management intends resuming the sinking of the shaft shortly. The road level is in 2,500 ft. and the levels below are fast gaining distance. There are 3 ft. of high-grade ore showing in the breast of the road level.

El Paso County—Cripple Creek District.

(From our Special Correspondent.)

Blue Bird.—This property, on Bull Hill, is again being worked on something of a co-operative plan by 8 lessees who are miners, and who are sinking the shaft. This is one of the few properties in the camp where capital has been unsuccessful in reaping where it had sowed.

Blue Jay.—A small shipment from this mine on Bull Hill, adjoining the Blue Bird, was recently made to Denver which yielded 30 oz. to the ton, and the second grade ore from 2 to 3 oz. The shaft has been sunk 60 ft. and a drift north 45 ft.; the vein here is 15 in. wide of 3 oz. ore. The south drift averages about 1 oz. per ton.

Bullock Leasing Company.—The New Discovery on Mineral Hill is being actively worked by this company, which has recently let a contract to sink the shaft from 150 to 200 ft., thus making this the deepest shaft north of the town of Cripple Creek. The shaft is not being sunk on the vein, but at the depth of 200 ft. crosscuts will be driven to intersect the vein or veins.

Chicago & Cripple Creek Tunnel.—This tunnel has been driven into Globe Hill 1,008 ft. having a vertical depth at face of 412 ft. The character of the rock has much changed during the last 4 ft., and it looks as if a vein is close at hand. The Peachey, and the Anchor, Geneva and other veins so productive 1,000 ft. further south should soon be intersected.

Doctor.—This mine, on Raven Hill, is now in a position to take out large quantities of high grade ore. The steam hoist will soon be kept busy.

Elkton Mining Company.—This company is making a radical change in the orehouse, intending to use water to wash its ores. The second boiler is in place and ready for connections. The usual amount of ore is being sent to market.

Gertie H. and Ptarmigan.—These claims are also being worked under lease and bond. These properties adjoin each other, and are located on Mineral Hill. The former claim has a well defined vein in in its 25-ft. shaft which assays about $10 per ton. Very rich float has been found on this claim, but considerable trenching and prospecting have not yet discovered the source. The Ptarmigan has a shaft sunk 60 ft. and a drift to the northwest of 70 ft. on a small vein which assays $16

Independence and Portland No. 2.—These mines, on Battle Mountain, communicated with each other at the third level of the Independenca equal to the fourth level of the Portland No. 2, the difference in depth, 120 ft., being due to the slope of the hill. The last 88 ft. of driving were done in 63 working hours. Both mines are now well ventilated.

Katherine.—This property is fast being developed and 22 men are employed, only 3 of whom are stoping mineral. The shaft has been sunk vertically 300 ft., the vein being only at that depth 3 ft. from the shaft. A station is being cut at 315 ft., and as soon as finished sinking will be resumed. The vein as far as seen at that depth is unoxidized and carries tellurium. A crosscut west has been extended from the 100 ft. level 65 ft., the object being to intersect the Tornado vein, which from present appearances of the crosscut will be found in a few days. The new vein west of the regular vein has been drifted on 35 ft., size of vein 3 ft., value $20. The mine has now 25 tons of 8-oz. ore, and 90 tons of 1½-oz. ore in the bins awaiting transportation.

Raven.—The winze in the lower tunnel has been sunk 55 ft. and still shows well, the average for 4 ft. across being $70 per ton.

Sangre De Cristo Tunnel Company.—This com-

pany has pierced Carbonate Hill north of town about 250 ft. The property is now equipped with air compressors and machine drills, and the rate of progress will be speedy, as the ground is not hard. The developments north of town are being watched with special interest.

Squaw Mountain Tunnel Company.--This company's tunnel has pierced Squaw Mountain 780 ft., and intersected 3 veins all of which carried values but not enough to ship at the point of intersection. This tunnel commences on the north slope, and is being driven by machine drills in a southeasterly course. This tunnel should intersect such well-known veins as the Santa Rita, Climax and Home Run.

Temonj.—This property, on the north slope of Gold Hill, is being worked under lease by John E. Smith, who has equipped it with a good steam hoist, shaft house, etc. The shaft is now 150 ft. deep, and will be sunk 70 ft. deeper under the present contract. A drift is being extended on the vein at the 120 ft. level, but thus far without any mineral.

Wide Awake.—This mine, on Raven Hill, is being but indifferently worked under lease at present. The shaft was sunk by lessees 200 ft., but the seams, although rich, were small and do not warrant extensive developments on short time and high royalties. The lessees furnished the steam hoist, shaft house, etc.

Gilpin County.

Gilpin Gold Company, Limited.—This company was recently formed to operate the Brooklyn group of mines, consisting of the Cashier, patented mine, and the Brooklyn, Electric and Republican mining claims. The Cashier is one of the oldest patented locotions in Gilpin County, and has produced more than $100,000. For several years past nothing but development work has been done on this group, the shaft being sunk on the vein and the levels driven east and west on the ore bodies. No ore whatever has been shipped, except such as had of necessity to be broken down and mined in extending the drifts and levels on the ore bodies, so that now large bodies are blocked out in the various levels, ready to be stoped. Mr. R. St. J. Cleary, of Denver, says that a stamp mill of the new rapid drop pattern, with a capacity of 25 tons daily, has been ordered, and within 90 days will be crushing ore already blocked out in the mine. The mill ore shown in the mine is said to run more than $20 to the ton. Five Ingersoll-Sargeant drills, with air receivers and compressor have been ordered. The shaft-house now over the main shaft will be removed to the west shaft of the Cashier. About 20 men are now at work sinking the shaft, which is 250 ft. deep, and extending four levels on the ore. The Cashier is supposed to be an extension of the Fiske, and it is intersected by the West Gregory vein.

Lake County.

Bangkok-Cora Bell Mining Company.—At the meeting of the new board of directors of this company, held in Denver on August 15th, the following officers were elected for the ensuing year: N. Q. Tanquary, president; James H. Crandell, vice-president; William H. Huff, secretary, and William Toovey, treasurer.

Lake County—Leadville.

(From Our Special Correspondent.)

Carlton Shafts.—These shafts, five in all, are on the disputed Searle territory, and, owing to litigation, it is very difficult to get any particulars. It is learned, however, that the strike in the Jason shaft is very good; that the ore taken out runs 52% iron excess and 8% silver, with indications of an ore body 50 ft. thick.

Chrysolite.—In the Colorado Chief shaft a drill-hole has been started down to determine the character of the lower formation and the possibility of finding an ore chute.

Emmet.—Shipments are regular, and 25 tons a day of sulphurides and oxidized lead is being handled.

Hulda Mining Company.—Regular shipments are being made from the Garbutt shaft. In a drift being run a streak of rich ore 1 ft. wide was opened up. The lessees believe that this is a feeder to a rich ore body.

Little Giant.—This property lies on Carbonate Hill, and after lying idle for several years was started up this week. Sinking was resumed at a depth of 350 ft.

Lucky Weber.—This is the new enterprise headed by Mr. Weber. Surface improvements are all completed, and sinking will commence during the week. It is expected to catch the Bon Air and Bohn Ore chutes on their western extension.

Marian Lease.—The lessees have sunk the shaft 60 ft., making a total depth of 1,100 ft. At this point some important exploration work is being carried on.

Resurrection.—Ore has been caught at the 600-ft. level. The bottom of the shaft is still in mineral, with 11 ft. in sight. It assays well in gold, silver and lead, averaging, it is understood, ½ oz. gold to the ton.

Silver Standard.—John Pesland, working under a sub-lease, encountered some good ore. It is only a streak, but is encouraging.

Welden.—Shipments from shaft No. 2 will commence next week. Some fine lead carbonates and iron are now being hoisted and placed in the bins.

Routt County.

(From Our Special Correspondent.)

Hahns Peak.—There is no abatement over mining matters at this point. A new town has been laid out some 5 miles north of this place and named "Columbine" in honor of the flower adopted by the State.

The most important discoveries thus far made are about ¼ mile from the summit of Hahns Peak. The ore runs nigh in silver. At the present writing the ore body seems to be in the form of a blanket formation and similar in character to the Leadville ores. Four different parties are arranging for diamond drills with which thoroughly to prospect the camp.

There are about 150 prospectors on the ground and the surrounding country is all staked off. Columbine is situated about 120 miles south of Rawlins, Wyo., the nearest railroad point. The Voorhees stage line runs within a few miles of the new town and good conveyances can be obtained from there in. A large amount of ore is being sacked and shipped out, nothing less than $1,000 ore being used.

Rock Springs Placer Company.—This company, in the Four Mile placer district, has just made the first clean up for this season; six acres of ground was worked to bed rock. The completed returns are not yet in, but the management states that the results thus far are better than had been expected. Mr. Hinman, the manager, states that the company will start again about September 20th and run until the winter stops operations.

Some Denver capitalists arrived to-day with a "Comet" placer machine which they will operate on property purchased from the Rock Springs Company, on Scandinavian Gulch. This ground, it is said, will run from $1 to $5 per yard. The company expects to start up in about ten days.

West Side Mining Company.—Work on this company's ditch is progressing rapidly, and will be completed as per contract. The road from Rawlins is lined with freight teams hauling material for the pipe, and a force of 60 men has left Denver to put it in. While sinking a series of holes to ascertain the contour of the bed rock preparatory to selecting a site for the plant, the workmen went through a conglomerate formation which has heretofore been taken for the bed rock. Beneath this they found coarser and richer gravel. At a depth of 24 ft., or 12 ft. below the supposed bed rock, they encountered water, and work was suspended until timber could be obtained for cribbing. The company has just completed a series of fire assays on this gravel, and the result shows that gravel that yields but 50c. per yard by panning gives by assay from $7 to $8. Should this prove to be the case generally, it will open up a new feature in the mining industry.

San Miguel County.

Mt. Wilson Gold and Silver Mining Co.—This company has started a new level to tap the vein at a greater depth, and while part of the force is engaged in running the tunnel the balance of the men will be kept busy taking out mineral for concentrating.

GEORGIA.

Cherokee County.

(From Our Traveling Correspondent.)

Chester Mine.—Work on this mine has been resumed, by continuing to sink in the vertical shaft, and into the hard formation. The change from the decomposed mica schist to the hard occurred at a depth of 75 ft. Mr. George T. Chester has provided an air compressor and drills in order to facilitate the work of sinking. Day and night shifts are being worked, and about 20 men employed in all. When a depth of 100 ft. from the surface is reached, a cross-cut will be run to explore the formation north of the shaft in which several bedded veins occur, at least such are the indications on the surface.

Coggins Mine.—A. B. Coggins, of Canton, has resumed operations, prospecting with a view to develop his property, which adjoins the old "Sixes." The decomposed mica schist country rock, on both these properties, prospects quite richly for some considerable thickness, but no ore body of auriferous quartz has ever been discovered. It is the intention of Mr. Coggins to continue this work and thoroughly prospect for a vein. In work done heretofore on these properties the hard formation has never been reached, because of the immense quantity of water which interferes with the work at shallow depth.

IDAHO.

Alturas County.

Atlanta Mining Company.—L. C. Lewis has the Silver Star machinery en route to Atlanta, where it will soon be in place, with 20 stamps working on the company's ore.

North Star.—J. Johnston has made a good strike in the upper works of the North Star Mine. He has solid first-class ore 1 ft. thick developed for 40 ft. in length, and is going up the hill, with 1,000 ft. of virgin ground above it on the vein.

Red Cloud.—Ore has been cut into at the Red Cloud mine at a height of 350 ft. from the level of the deep tunnel, which has been driven during the past two and a half years. Since the ore was cut into, the face of the workings has been in a solid body of galena and carbonate ore, the thickness of which is undetermined, and will continue so until the other wall is reached. This discovery is at a depth of 900 ft. from the apex of the vein, and demonstrates the continuity of the vein in depth, and that it is ore-bearing. It gives the Red Cloud owners a new vein from which to extract ore that will probably be found to extend into the upper workings.

Blaine County

Comet Gold Mining Company.—Articles incorporating this company were filed recently with the clerk of Salt Lake County, Utah, by H. P. Mason, George C. Kidder, J. H. Latey, J. L. Kidder and E. L. Mason, with a capital stock of $1,000,000, divided into 100,000 shares of $10 each. The property of the company consists of a lease and bond on the Comet claim, located in the Soldier mountains, about 32 miles nearly due west from Halley, and is in the Camas gold belt. The formation is granite, and it shows a ledge of gold bearing gold thoroughout its length, between granite walls. The principal ore body lies next to the hanging wall, and is from 5 to 8 ft. thick. Upon the foot wall the ore is also continuous as far as explored, and is from 18 in. to 36 in. thick, The ore upon the two walls is of the same general character and of about the same value. The mine is now in a condition to supply a mill of 20-ton capacity. The company will put in a Crawford mill.

Boise County.

(From Our Special Correspondent.)

West View District.—State Senator Alex. S. Robertson, of Nampa, has closed a deal for the sale of his Red Warrior Mine on Willow Creek for $6,000. He has also bonded the Red Bird Mine in the same district for $2,000, the bond to run four months. Several other sales are on the tapis in the camp, with good prospects of going through.

Idaho County.

(From Our Special Correspondent.)

Dixie.—Thos. Pritchard is erecting an arastra on his Fourth of July mine. Samuel Dillinger's arastra is running steadily on good ore.

Elk City.—A party of Granville citizens went to Elk City recently on a tour of inspection, and were so pleased with the outlook for the camp that they decided to put more work on the wagon road, recently built by subscription, so as to render it possible to freight heavy machinery over the same. James Witt cleaned up over $2,000 from the Deadwood placers, the result of 50 days' run.

Poorman.—Drifting on the vein of the Poorman is rapidly progressing. It is expected that the point under the shaft will be reached shortly, when an upraise will be made, the ore stoped out and the tunnels continued in along the vein. There are now 22 in. of good ore in the bottom of the shaft and 8 in. of the same kind of ore in the face of the drift.

Little Slate.—Some new discoveries have been recently made on Little Slate Creek by Grangeville parties, showing a well defined ledge running well in free gold. The ledge is between granite and slate, with talc on both walls, showing a true fissure. A shaft is being sunk.

Warren.—A number of old mines will soon be reopened by parties having capital to put in machinery. A great many properties in this camp have been worked for many years to the water level, and it is only quite recently that a steam pump or hoist was brought into the camp. The pay chute in the Warren veins continues below water level wherever this has been proven by hand pumps, etc., and is as rich in gold as on the surface. The Little Giant is a type.

Weber Mining Company.—This company shipped 20 more tons of concentrates to the Tacoma smelter last week.

Latah County.

(From our Special Correspondent.)

Poalouse Mica Company.—This company has struck a good deposit in the mica mine in the Hoodoo District. Specimens sent to Chicago are pronounced to be of excellent quality.

Lemhi County.

(From Our Special Correspondent.)

Coleman Placer Company.—This company has its new giant working. Everything is in good shape. The ground prospects well for 5 ft. above bedrock.

Lemhi Mining Company.—General Manager Singiser, of this company, which is operating in the vicinity of Gibbonsville, states that his company now has the new 10-stamp mill in full operation, and the work being done by it is satisfactory.

Yellow Jacket Mining Company.—This company is crushing 125 tons of ore per day, valued at $12 per ton on the plates, and is employing at present 125 to 150 men. More or less trouble is experienced with the tramway, but a new tramway having a capacity of from 250 to 1,000 tons per 24 hours, is now on the way to the mine.

Owyhee County.

(From Our Special Correspondent.)

Flint Mining Company.—The lack of water caused this company to close down its mill after a very successful run. A force of men is now at work remodeling the mill interior to add more stamps and to replace the canvas cotters with vanners. This work will be accomplished by October 1st, when water will be again available. Plans are being made to sink in the "burnt shaft" several hundred feet, and a new and large hoist will have to be purchased for the work. The management also con-

templates putting in a pipe line from the head of Hard-up Creek, and a bucket tram from the mines to the mill. Considerable wood is being laid in for winter use at the mill.

Poorman.—Some 35 men are employed in erecting the new mill and tramway for this company. The frame of the mill is now partially raised, and the stations on the tram are all graded ready for the towers. The mill and tram will be ready for operation early in September. Quite a large force of miners are employed at the mine opening up new ground. Supt. Anderson has tendered his resignation and gone to Mexico.

Trade Dollar.—Five bars of bullion were shipped from this property a short time ago. The concentrate shipments amount to a carload per month. Over 100 men are employed at the mine and mill.

Shoshone County.

Bunker Hill & Sullivan Mining Company.—This mine is still running steadily. There have been more applications from laborers than could be taken, and the company has nearly a full force of miners.

Hunter.—This mine, at Mullan, has been started up with a small force, paying the same wages as the Bunker Hill & Sullivan Company. The force will be gradually increased.

Last Chance Mining Company.—This company has about 40 men working. The mill, which has been running one shift only, will be started to run double shift soon.

(From Our Special Correspondent.)

Murray.—More gold is being produced in and around Murray than ever before. A large electric lighting and power plant with capacity to run every mill and light every cabin in Pritchard is being put in.

Sierra Nevada.—Development is being pushed on this mine and some good ore taken out. The mine is working on a profit-sharing arrangement.

INDIANA.

Vermillion County.

The miners of Norton Creek have resumed work. The agreement is that they shall work for 5lc. and continue while the Grape Creek price remains at 47½. Should the price at Grape Creek be advanced, the price at Norton Creek shall continue to be 3½c. per ton in advance of Grape Creek. The day men are to receive $1.80 per day. The same agreement is now in force at the Hazel Creek and Shirkle mines at Clinton. The men at the Clinton Look mines have agreed to work for 5lc. until October 1st, when the 6)c. scale is to be adopted.

IOWA.

Jones County.

Professor Calvin, State geologist, and Professor McBride are making an examination of the soil and geological formations south of the Wapsie, where considerable lead has been found. They believe that the land thereabouts is rich in lead.

Dubuque County.

Lead mining is being carried on vigorously in a venture now being prosecuted by A. W. Hosford and his associates on the old Booth, Coates and Cheny range. They have removed the machinery that was formerly located near the old shot tower to a shaft in the hollow beyond, where the lift of water is 50 or 60 ft. less. At this point they have erected a crushing and concentrating plant. So far about 225,000 lbs. of mineral have been taken out of the second opening, about 150 ft. below the surface.

Karrick.—Lead miners about Dubuque are discussing the reported operation of the Karrick diggings with modern machinery. Recently a Chicago company leased the diggings, and it is understood they soon will commence operations. With the exception of the Ahearn mine, modern appliances have not been used in Dubuque mines, says the Dubuque "Herald," and the new company proposes to use modern methods, and will test the veins to the depth of 500 ft. if practicable.

KANSAS.

Leavenworth County.

Home-Riverside Coal Company.—The price of coal was reduced to 9¼c. a bushel by the Home-Riverside mine on August 1st. This increased the business at the mines, and has given the men more work.

KENTUCKY.

Butler County.

The tipple and elevator of the Mud River coal mines, eight miles from Rochester, were burned last week. The men working at the time the fire broke out escaped through the air shaft. The loss is estimated to be $15,000.

LOUISIANA.

Iberia County.

A press dispatch from New Iberia says that the salt mines at Avery Island are caving, and the railroad company has been forced to take up a part of its tracks. This does not interfere with the mining operations, as the cave is in an old shaft.

MICHIGAN.

Copper.

The Calumet & Hecla, Tamarack, Tamarack, Jr., Osceola, Kearsarge, Quincy and Wolverine mining companies have increased the wages of employees 10%, dating from August 1st. This affects over 5,000 men.

Centennial Copper Mining Company.—The secretary of this company announces that at the request of a majority of the stockholders the board of directors have called a special meeting of the stockholders to be held at No. 53 State street, Boston, Mass., on September 19th, at 12 o'clock noon, to determine what action, if any, will be taken with regard to the debts of the corporation and especially the mortgage debt, now due and payable, under a decree of the Court and amounting to about $131,341.07, and whether the stockholders will appoint a protective committee of the stockholders, with full power to deal with the existing status of the corporation, and especially to authorize such committee to purchase the mortgage debt for and in the interest of all the shareholders; to consider and arrange a plan for a reorganization, if necessary, of the company; to formulate plans for the early resumption of active mining operations, and to provide funds for that purpose; to determine whether the present organization shall be dissolved and a new corporation organized under the amendments thereto; to consider the question of consolidation of the present corporation with some other corporation organized under the mining laws of 1887 of the State of Michigan and amendments thereof.

Iron—Marquettte Range.

Antoine Ore Company.—This company is employing nearly 100 men at the Keel and Ridge properties. At the former shipping operations are retarded by the unsatisfactory work of the crusher. About 300 tons per day are being crushed. Two more stripping contracts have been let, and the contractors have commenced operations. At Keel Ridge the Chicago & Northwestern Company has built the spur track to the pit. A 125 H. P. engine is now being erected, and President Jones expects to make the first shipment of ore to Escanaba about Wednesday. The ore will not be crushed this season, but a crusher may be added to the plant another year. It is expected to ship 30,000 tons of ore from this property this season, which will require some tall crushing. Wallace Kimberly has charge of mining operations. The company has acquired a controlling interest in what is known as the Cornell property, containing several hundred acres to the north and east of Iron Mountain.

Iron—Menominee Range.

Mastodon Iron Mining Company.—This company, of Chicago, which has been operating the Mastodon mine, near Crystal Falls, has surrendered its lease and made a compromise with the fecholders of the new exploration known as the Dober property, near Iron River, where it will move its plant and immediately begin work. Test pits show a vein of ore 80 ft. wide, and the analysis shows 65% metallic iron.

MINNESOTA.

(From Our Special Correspondent.)

Iron ore shipments from the docks of the Duluth & Iron Range and the Duluth, Missabe & Northern roads for this month to date have been over 300,000 tons, and from the Duluth & Winnipeg about 25,000. It is not unlikely that they will foot up to 650,000 tons for the month from the three ports. From Two Harbors last week there were 57 clearances, among them the steamship Victory, with 3,689 gross tons, the largest cargo ever taken out of Lake Superior. Vessel men are now talking of 95c. ore, and will probably get it soon after Marquette shipments start up briskly. The fall traffic in leading commodities, ore, coal and grain will be very large.

The Duluth & Iron Range is getting some locomotives that weigh 240,000 lbs., the largest in the West. There will be four of them in the first order.

Iron—Mesabi Range.

(From Our Special Correspondent.)

The gross earnings of the Duluth, Missabe & Northern for the first six months of the year, almost wholly from the ore hauled in May and June, were $458,535. The earnings for the full year will not be less than $1,400,000.

Auburn Iron Company.—At this mine the stock has been shipped, and all shipments are from the workings. The ownership, which was contested in the courts, has been decided favorably to the present owners, and the Minnesota Iron Company is not to be disturbed in its possession.

Biwabik Ore Company.—The Drake & Stratton Company has received a second stripping contract at this mine that will give the company over 650,000 yds. of earth to move, nearly all of it before next spring. Five shovels will soon be at work. The intention is to connect the two open pits at the mine, the east and west cuttings, and which are now separated by nearly 2,000 ft. of earth from 40 to 45 ft. deep. The entire length of the cutting to be made will be over ore. Besides this work there will a large area in the present two cuttings that will be stripped for extensive mining operations next season. Altogether this work will make an entirely different proposition of the Biwabik before another summer. The work is a very great one, but it will lessen mining costs greatly.

Canton Iron Company.—At this mine air drills are now being used underground. The 200,000-ton stock pile at shaft B has been entirely cleaned up and work at the pile at A will soon send that away. Mining operations are hindered by a scarcity of men.

Cincinnati Iron Company.—Sinking in shaft 10 is being pushed to the bottom of the ore body. Shipping will begin this week. The small stock pile at this shaft is to be moved at once.

Franklin Mining Company.—New hoists, with 6 ton skips, are going into position, and will be ready in about three weeks. About 50 cars a day will be sent from the stock pile till it is cleaned up, and the mine will ship a large quantity of ore from this time on.

Lake Superior Iron Company.—The Consolidated will open a new property a short distance southwest of the Mahoning mine this winter, and machinery for the underground workings is now on the way. A pump and two mining shafts will be sunk and equipped, and the No. 1 mine will also be fitted out with heavier machinery. Extensive explorations by drill will also be carried on to determine what the company has in the way of hitherto unexplored ore bodies, and the extent of the present workings.

Mountain Iron.—The Lake Superior Consolidated has raised wages at this mine, common labor to $1.50 a day.

Norman.—At this mine a drill is 230 ft. in ore, and still going down. About 50 cars a day are being shipped.

Iron—Vermilion Range.

(From Our Special Correspondent.)

Chandler.—This company will soon cut down its force of 350 men to about 200, striving in the meantime to get out all its stock piles before the close of navigation. It is running day and night shifts at the stock pile shovel. Until the pile is cleared hoisting operations will be light. It is likely that mining will be very energetic at this property the coming winter.

Pioneer Iron Company.—At this mine the tracks for shipping are being laid and the final connections completed prior to sending out ore. About 300 tons daily are hoisted from the workings.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin, Aug. 12, 1895.

The price of zinc ore has at last reached $25. One lot, form the I Know mine, in Leadville Hollow, ruling at $25.50. Lead ore remained at $19.50. The following are the sales from the different camps:

Joplin, zinc, 1,429,560 lbs.; lead, 317,180 lbs.; value, $23,163. Webb City, zinc, 601,170 lbs.; lead, 24,900 lbs.; value, $7,855. Carterville, zinc, 1,353,960 lbs.; lead, 154,950 lbs.; value, $11,155. Oronogo, lead, 29,370 lbs.; value, $517. Zincite, zinc, 37,930 lbs.; value, $435. Spring City, lead, 31,690 lbs.; value, $598. Stotts City, zinc, 37,190 lbs.; value, $425. Aurora, zinc, 674,000 lbs.; lead, 125,000 lbs.; value, $8,937. Springfield, zinc, 44,000 lbs.; value, $506. Galena, Kan., zinc, 2,220,000 lbs.; lead, 800,000 lbs.; value, $36,290. Total output for the district, zinc, 6,397,810 lbs.; lead, $1,483,090 lbs.; value, $89,881.

The miners are gradually getting the water out of the lower levels, and prospecting, which was somewhat retarded by the wet weather some weeks ago, is again being vigorously pushed with flattering results in many instances.

Cave Springs Mining Company.—This company, under the management of Mr. Phil. Pfenning, will remodel the old Banner plant, and prepare to reopen the mines.

Granby Mining Company.—This company has sunk a drill hole on the high plateau, west of the white lead works, which has generally been regarded as barren ground, and has struck a good body of ore.

Newton County.

Wentworth District.—The Acme Mining Company, with a capital of $150,000, and composed of Chicago capitalists, commenced work last week on the Burnett land, and will have a large milling plant in operation before the close of the year. The editor of the Wentworth "Mining Journal" writes us that prospecting in a deep shaft has shown a good face of zinc ore, and the work of cutting drifts and the erection of a plant will be carried on simultaneously. Another company of Chicago men, with a capital of $250,000, has also been organized to operate at another part of the same tract of land.

MONTANA.

Granite County.

Lindsay.—At this property on Rock Creek, a five-stamp mill is being put up by Mr. John Ford, the owner, the development work having proceeded far enough to make the supply of air for the mill uncertain.

Oro y Plata Mining Company.—This company is putting in a new flume to supply water for its mine in Philipsburg. Mr. William Stahl has been appointed superintendent of the company's operations.

Red Lion District.—There is considerable activity at this mining district. More or less development work has been done in that section for many years, the best developed claim being that of the Red Lion company, on which there are a hoist and a mill. The ore has been troublesome in that it is hard to save the gold. There is plenty of the ore, and it is reasonably rich. The Hannah, on which the best strikes were made this summer, is being developed steadily. Johnson & Newcomb have a force of men employed on their mill extending a 350-ft. tunnel 100 ft. further into the hill. Messrs. Hefferon and Burgett have a pile of ore on the dump which shows up well with fine milling gold. Whiting and Maynard

are working on the Montana, a claim near the Red Lion. At Georgetown, 8 miles nearer Anaconda than the Red Lion, important work is progressing. This ore, like that of Red Lion, is peculiar, though not similar in character. It is not refractory or base, says the Anaconda "Standard," but is in very fine particles which plates do not catch. Bechtel & Snyder have struck a good body of ore in the old Diamond mine, which is now known as Fairstakes. If it is continuous as they sink in the lead, a crusher will be placed on the claim this fall or early next spring.

Trout.—Work has been resumed at this old mine and development is proceeding actively. The hoisting engine from the old Puritan mine has been removed to the Trout mine and is now being erected.

Lewis and Clarke County.

Golden Crown.—This mine, near Helena, situated on Silver Creek, closed down last week on account of lack of water. The mine is owned by Eastern parties and is in charge of Messrs. Hight & Hudson. They have about 400 tons of ore at the mill and more at the mine. The mine is said to be a promising one and work will be resumed as soon as circumstances will permit.

Jay Gould.—This mine has been leased to Chicago capitalists, represented by C. B. Holt, formerly vice-president of both the Helena National and Second National banks, says the Helena "Independent." They have a lease, with a bond for a deed, and will improve its facilities for taking out and handling ore. The mine is 17 miles from Marysville, on the N. P. road, and 30 miles from Silver, on the M. C. road. The Jay Gould has long been valued as a high-grade mine and is said to have produced a gross amount of bullion of the value of $1,500,000. The ore is free milling gold, with some silver, running about $40 a ton.

Penobscot.—This property, near Marysville, it is said, is to be abandoned within the next three months, as it has been worked out. There is ore enough broken down, its operators say, to continue the mill at the above mentioned time. The mine has produced $185,000 under its present management, and the ore has averaged $4.60 per ton, with a cost of $2.50 per ton for working.

Missoula County.

Iron Mountain Company.—The secretary of this company has sent us the following official statement for July: Cash on hand July 10th, $4,180; returns from ore sales during the month, $25,407; current expenses for the month, $14,283, leaving a net profit of $15,303, from which dividend No. 28 of $10,000 was declared.

Park County.

(From an Occasional Correspondent.)

Cooke District.—Two carloads of ore were shipped to Omaha last week from the Daisy, on Henderson Mt. This property has been bonded to St. Paul parties for $33,000 and enough ore will be shipped to give it a thorough test. The mill on the Alice E. is being operated again on surface ores. The road across the Park to Cooke is being much improved this summer, the government having about 30 men at work on it.

Silver Bow County.

Saratoga.—A 5 ft. vein of copper is said to have been struck in this property. The mine is under bond and lease to G. Anderson, who has been sinking on it and at the 100-ft. level began to drift, encountering the ore a short distance from the shaft.

NEVADA.

Storey County.

Brunswick Exploration Company.—The latest weekly report of the superintendent says: Shaft No. 1 on Hale & Norcross ground, near the Chollar north boundary, has been sunk and timbered for a distance of 15 ft. on the incline; formation of quartz and porphyry giving low assays; total depth, 53 ft. Shaft No. 2, on the boundary of the Consolidated California & Virginia and Best & Belcher mines, has been sunk and timbered for a distance of 14 ft. on the incline; bottom in soft porphyry. Tunnel No. 1, on Savage ground, started at a point 75 ft. north of Sutro Tunnel shaft No. 3, has been extended to a total length of 120 ft., passing through porphyry, clay and quartz.

Storey County—Comstock Lode.

Following are extracts from the latest weekly official letters of the mine superintendents:

Belcher.—On the 300-ft. level the joint Belcher and Seg. Belcher south drift is in quartz giving low assays. There have been hoisted and stored in the orehouse at the mine 18 tons of ore, the average top car sample of which shows an assay value of $28.49 per ton.

Chollar.—We have extracted and sent to the Nevada mill for reduction 33 tons ore, the top car sample of which was $35 per ton. The ore in the dumps has been milled and the average battery sample of it was $32.83. We have shipped the clean-up, the par value of which was $7,058. The raise from No. 2 crosscut, 450 level, is up 7 floors, and has encountered old fillings in the top. There is a streak of ore on the south side of the raise which runs from 18 in. to 3 ft. wide, assaying from $20 to $40 per ton, which we save.

Crown Point.—We have started a west crosscut on the 600-ft. level at a point 200 ft. south of the north line, with a view of prospecting the ground west of the 700-ft. level stope, and incidentally connected with the 11th floor of the stope mentioned, for air. The south drift from the 10th floor of the north raise, 700-ft. level, has been driven 42 ft. south, and connected with the stope coming north on the ninth floor. The point of connection is in quartz assaying from $7 to $9 per ton, principally gold. Going south, on the floors above the fourth floor, 700-ft. level, the quartz continues to break off sharply to the southwest, and is from 10 to 15 ft. wide, assaying from $8 to $12 per ton. We have extracted during the past week 1,022 tons, 150 lbs. of gold ore, the average battery sample of which was $10.25, of which $9.17 was of gold. We have shipped one bar of bullion—the July clean-up—the par value of which was $19,572, the coin returns of which were $19,040.

Hale & Norcross.—The southwest drift in the 975 ft. level, heretofore designated as West crosscut No. 2, from main south drift was advanced to a total length of 48 ft. The ore in this drift is increasing in width as we follow it, and is now 5 ft. wide in the face, and will assay from $45 to $60 per ton. From this drift we extracted during the week 32 cars of ore, assaying per mine car sample $61.93 per ton. In the intermediate level we have been stopped from the streak of ore on this level, from which we extracted this week 3 cars of ore, assaying per mine car sample $68 per ton.

Potosi.—The raises from the north drift from the east crosscut, 550 level, is now up two floors; the west side of the cut is in quartz which is believed to be the bottom of the same streak cut in the northwest drift from the winze 50 ft. above; the quartz gives assays of $13 and $14 per ton.

Savage.—On the 950-ft. level, west crosscut, No. 1 started from the north lateral drift 106 ft. north of the station, is advanced 68 ft.; face in clay and porphyry. The south lateral drift from the station is advanced 95 ft.; face is in quartz and porphyry. In the east crosscut from the third floor of the old stopes we are extracting some fair grade ore. On the 1,050-ft. level in the west crosscut from the face of the main south drift we continue to stope good ore. We are repairing the main south drift on this level. During the week we hoisted 40 cars of ore; car samples average $42.85 per ton. On August 11th we commenced to ship ore to the Nevada mill, and have now shipped 180 tons. The mill commenced crushing on August 13th.

NEW JERSEY.

Morris County.

Mt. Pleasant.—The strike at the Mt. Pleasant mine, near Port Oram, is still on. The company has offered to advance wages 10% on condition that the men work 10 hours instead of 8 as heretofore. This the men refuse to do.

NEW MEXICO.

Socorro County—Cooney Mining District.

(From Our Special Correspondent.)

Big Dry Creek Mining District.—Considerable prospecting has been done in this district during the last two years. A number of well defined large veins of free milling gold ore have been discovered and considerable development work has been done on some of them, proving the locations to be valuable. There is plenty of water for power, and wood is abundant. The want of a wagon road from the valley has so far prevented this district from being a producer.

Copper Queen.—The drift on the vein is now in over 400 ft. The shaft on top, which is down 120 ft., shows 6 ft. of excellent milling ore. It is expected that a mill will soon be erected on this property. U. S. Deputy-Surveyor G. Brown, of Silver City, is in charge.

Custom Mill.—That a custom mill is needed at Mogollon is shown by the fact that 2 arastras are now in course of erection, one to work the ore from the Flying Jib and the other for the Deadwood. The ore from the latter mine will be roasted slightly before treatment. The Deep Down mill, which did some custom work this spring, will, in all probability, not resume work.

Florida.—The owners of this claim are still doing development work. They expect shortly to strike in the lower tunnel the ore chute found in the top workings.

Hermese.—This claim, on the Queen vein, is the northern extension of the Copper Queen. Some high-grade ore has been found on top and the owners will do some development work this fall.

Grant County.

(From Our Special Correspondent.)

Little Dry Creek Mining District.—Two years ago some excitement was caused by the strike of some high-grade sylvanite in the tellurium mine. Little work was done on this property, which was the first location, until Messrs. Peterson and McGuir commenced working it this spring under a lease and bond. High-grade gold ore was struck on the surface in two different places. A shaft 40 ft. deep shows a well defined vein. Two grades of shipping ore are being taken out, the first class running 50 oz. in gold and the second class from 10 to 15 oz. in gold. Though considerable prospecting has been done no similar ore has so far been found outside of this location.

NEW YORK.

St. Lawrence County.

Empire Marble Company.—This company has been incorporated to purchase and work a stone quarry near Gouverneur. The directors are Robert G. Dodge, Daniel J. Whitney, of Gouverneur, Louis J. Landing, of Watertown.

Washington County.

Baker Red Slate Company.—This company has opened its new quarry at North Granville and is making arrangements to put up a mill for the manufacture of floor tiling and other products of the slate.

Stateville Quarry.—This property, near Hebron, has recently been sold to Walter White, who proposes to form a stock company to work the quarry. The quarry yields a good quality of red slate, but has not been worked for two years past.

Star Slate Company.—This company has for some time past been opening a quarry near Slatington and is now putting in an engine and other machinery and erecting a mill for the manufacturing of roofing and school slate.

PENNSYLVANIA.

Anthracite Coal.

It is reported that the Lykens coal vein has been struck by the Thomas Company, near Shenandoah.

A late press dispatch from Wilkes-Barre says that quite an extensive cave-in has begun in Luzerne in the old Hutchison workings and in what is now the Haddock Mine, although at present the region is not being worked. This is the third time that this particular section has caved in. Several houses and lots adjoining are badly affected. It does not affect the operation of Haddock's mine, as the cave-in is in an abandoned working.

Nelson shaft, one of the largest mines in the western anthracite coalfields, has shut down for an indefinite period on account of the low prices of coal, and 900 men and boys, most of whom live in West Shamokin, have been thrown out of employment. Operations will not be resumed until there is an improvement in the price of coal. All of the mules have been hoisted from the mine, and all dead work has been stopped. This colliery has worked every day this summer, and is operated by J. J. Langdon & Co., of Elmira, N. Y.

The supply of water at Minersville has gone so low that the president of the Water Company issued orders on August 21st for the supply to be cut off for several days in order to allow the dams to fill up. So little rain has fallen and the constant demand from the town, together with the consumption by the Lytle Coal Company and other collieries in the district, which are supplied by the Minersville dams have been so large that it is feared the residents will be compelled to resort to old-fashioned methods for getting water unless rain comes soon. The Beechwood, Oak Hill, Eastridge and Lytle collieries have been drawing water at night until recently, when this was found to be insufficient, and the constant demand from the collieries coupled with the lack of rainfall has brought about the scarcity of water at Ashland too. The residents are compelled to have the water shut off 15 hours out of the 24 as long as the dry spell lasts.

The Carbon County Commissioners, who have been sitting as a board of tax revision for the past two weeks, have completed their labors, with the result that the valuations of coal lands in this county are over $2,000,000 higher than in former years. The coal companies interested have all been notified of their rating, and on September 7 they will be given an opportunity to be heard in their own behalf. The proceeding is similar to that in Schuylkill County three years ago, when the valuation of coal lands in that county was increased by about $1,000,000. It has been a notorious fact that, compared with other property, coal lands have been rated remarkably low. Lands that are known to have veins of coal beneath their surface over 100 ft. in depth were assessed for $175 an acre. Other lands valued at $1,000 an acre were assessed at $100 an acre, and some even less. The commission engaged experts on coal valuations, and they have made a revision that they think will withstand any opposition that may be brought against it. The following is a list of the companies affected, and the increase of each: Lehigh Coal and Navigation Company, increase, $494,672; Lehigh & Wilkes-Barre Coal Company, $97,318; Lehigh Valley Coal Company, $95,257; Lehigh Valley Railroad Company, $154,217; New York & Lehigh Coal Company, $36,438; A. S Van Wickle, $100,754; Coxe Bros. & Co., $68,773; Evans Mining Company, $3,000.

Union Coal Company.—An explosion of gas occurred at this company's Pennsylvania mine at Shamokin by which two miners were fatally injured.

Johns.—The old Johns colliery at St. Clair has been taken hold of by Scranton capitalists, who have secured a lease from the P. & R. C. & I. Co., and expect to make considerable improvements there at once.

Bituminous Coal.

O'Neil Coal Company.—This company, of Fayette City, has effected a compromise with the men, by which the latter agree to work below the scale rate fixed at the convention in Pittsburg a few weeks ago. The old rate was 23c. per car for digging by machinery, but the convention raised the price to 30c. A compromise was made on a 27c. rate. The other mines along the river are running at the 23c. rate, but the men will demand the scale rate when the river rises. A refusal by the operators will, it is said, bring on a strike.

Berks County.

U. L. Hertzel, of Allentown, and Job H. Volk, of Reading, have miners at work on John Heffner's tract in the East Penn valley, between Fleetwood and Lyons. Mr. Volk says that they struck a vein of hematite ore of 50% metallic iron 4 ft. below the surface.

Bucks County.

Stoneback Quarry.—This quarry, at Lower Richland, has been sold to Henry Gross, of Doylestown, who will begin work at once.

Delaware County.

Radnor Stone Company.—This company has been reorganized to work the quarry at Ithan, heretofore owned by J. N. Zell. The new company will very much extend the operations.

Northampton County.

Slatington-Bangor Slate Syndicate.—The largest shipment of roofing slate that ever left the Bangor region, consisting of 20 cars, was made on August 17th.

SOUTH DAKOTA.

Lawrence County.

Challenge.—This mine, situated on Spruce Gulch Divide, now being examined by J. H. Lyman, of Milwaukee, Wis., with a view to its purchase, has had a new pump put in to clear the workings of water. The main tunnel has been run on an incline for 60 or 70 ft. following the dip of the vein. Several hundred tons of the ore have been extracted and milled at the Noble-Grand mill on Two Bit Gulch, but owing to the poor condition of the mill but a small per cent. of the value was recovered. Mr. Lyman now has about 60 tons on the dump, which he will have treated in the same mill, and in order to recover more of the value has set up sluice boxes through which the tailings will be run. The workings on the property disclose a vertical vein of siliceous ore 5 ft. wide coming up through the free milling body, says the Deadwood "Times." This vein is said to show values ranging from $25 per ton and upwards. It has been stripped for 40 ft., and samples were recently taken to the Deadwood & Delaware smelter, but the works have such a surplus of ore on hand that the management were unable to make arrangements for its treatment.

Golden Reward Mining Company.—Work on this company's mines, which was abandoned recently on account of the superabundance of ore at the chlorination works, will be resumed shortly. The cyanide works of the company are to start up on August 22d, and as soon as the increased crushing capacity is ready will run continuously. At present it is impossible to crush sufficient ore for both the chlorination and cyanide plants, so that it is only when several tons of ore are crushed for the chlorination works ahead that the cyanide works can be run.

Iowa Chief.—This property, under operation by Rogers Bros. & Combs, is in a good stope of ore. A contract has been closed for a 120-ton lot at the Taylor & Brunton sampler, and it is being run. There are 12 men employed.

Maggie Mining Company.—The Fannie shaft, on this company's ground, is now down 240 ft. and has struck the second contact.

Sula.—The lessees of this claim in Lead City have men at work prospecting the ground for the rich ore shoots, now being profitably worked on adjoining claims. All of the workings are in silicious ore, ranging from $8 to $15 gold per ton, not rich enough to give any profit over cost of treatment and transportation. A new shaft has been sunk in the stratum of cement, 12 ft. thick, which looks well, but no tests have been made to show its value.

TEXAS.

Milam County.

Lignite Mining Company.—It is reported from Rockdale that the mine of this company is on fire.

UTAH.

Beaver County.

Rob Roy.—All operations at this property, on Indian Creek, have been discontinued, and the sheriff of the county holds claims aggregating $4,000 against the owners in favor of the Tanner-Bakes Company, of Beaver.

Millard County.

Ibex.—Receiver Humphreys, of the Ibex smelter, is now engaged upon an inventory which will be submitted to the court, and instructions asked governing his future conduct. On August 22d inst. the company appeared as defendant in an action brought by the Horn Silver Mining Company. The latter claims something like $1,300 due upon ores delivered the smelter at Leamington, while the receiver claims that Horn Silver shipments were light weight, and that it is entitled to $1,000 from that source.

Salt Lake County.

A press dispatch from Salt Lake City says that Bingham suffered from a disastrous fire on August 19th, the loss aggregating $200,000. Forty-five houses and business places were destroyed, and many people are homeless.

Tooele County.

Big Mormon Chief.—M. C. Smith and William H. Powell have secured an option on this property, located on the north side of Lewiston canyon, below Mercur. Mr. Holland has done considerable work on this property and developed a vein running about $2 per ton gold.

VERMONT.

Rutland County.

Co-operative Slate Company.—This company, which has been shut down for a short time, has leased the old Allen quarry near Fair Haven and will soon start up its works.

Scotch Hill Slate Company.—This company has been giving its plant a general overhauling and putting in some new machinery. A large vein of purple slate was recently opened.

WASHINGTON.

Baker County.

Mont Pedro Mining & Milling Company.—This company has filed articles of incorporation to acquire and operate mines, especially the Mont Pedro group, in Baker county; office, Rye Valley.

King County.

Great Northern Coal Mining and Development Company.—Prospecting the coal claims of this company, 2½ miles from Skykomish, has developed a 7-ft. vein of coal. An analysis of the croppings shows 74% carbon. The property is only half a mile from the Great Northern road and is at an elevation of 1,800 ft. The stockholders in the company are all Seattle people, as follows: C. A. Sauk, president; F. Fritzlof, treasurer; Charles Steaufifte, secretary; A. Baker, E. Jonson, O. E. Lashner, J. T. Pomeroy, Frank Wandschneider, G. L. Blank.

Skagit County.

Slate Creek District.—The first ore ever shipped from the Slate Creek mining country arrived at Anacortes last week, and will be shipped from there to the smelter by steamer. The ore is from the Whistle mine, on Crater Mountain. The ledge is 30 ft., between well-defined walls, with a rich paystreak of 2 ft. The owners have a force of men running a tunnel, and intend shipping the higher-grade ore to the smelter until they can get in proper machinery.

The company that bonded the Eureka mine has suspended work. At the time of closing down it employed about 30 men and was running three shifts, each working eight hours. The reason for the suspension is not known.

Snohomish County.

Wilmans.—Mr. J. M. Wilmans, accompanied by Mr. Miller, of California, and Mr. Compton, of Elmira, N. Y., both of whom are interested in the Wilmans mining properties at Monte Cristo, have been inspecting the mines. Work on the Golden Cord was resumed last week with 30 men. The Golden Cord has considerable ore in sight, and is sufficiently developed to mine 50 tons a day. Mr. Wilmans will take charge of the mines in person. The new machinery in the concentrator at Monte Cristo has been started and works very satisfactorily.

Stevens County.

Wellington Mining Company.—The directors of this company, recently incorporated, have elected officers as follows: William O'Brien, president; J. L. Drumheller, vice-president; F. T. McCullough, secretary and treasurer; W. H. Kearney, general manager. The Wellington is a gold and silver proposition, situated in the Old Dominion district, about 16 miles from Colville. It was located in 1885, and has a 114-ft. tunnel, giving a depth of 120 ft. No work had been done on the property for several years until the present company took hold of it, says the Spokane "Review." Work has already been commenced. The company is capitalized at $250,000, of which $50,000, paid up and non-assessable, has been set aside for development work.

WEST VIRGINIA.

Wayne County.

Dunlow Coal Company.—The mines of this company at Dunlow, which have been idle for the past year, have been leased to Ironton parties, and are being made ready for operation.

WISCONSIN.

Iron-Gogebic Range.

Colby Iron Mining Company.—The directors of this company have elected Gordon H. Pile, president; Edward Aschermann, vice-president, and T. L. Chadbourne, secretary.

Windsor.—Superintendent Webb of this mine at Hurley, has received orders to reopen the mine and commence work. The Pence and Snyder mines, west of Hurley, are about to resume work.

FOREIGN MINING NEWS.

BRITISH COLUMBIA.

A press despatch from Spokane, Wash., dated August 18th, says that Three Forks has been almost entirely wiped out by the fierce forest fires, which continue to rage with unabated fury. The inhabitants left everything and fled for their lives.

COLOMBIA.

(From an Occasional Correspondent.)

The greatest mining activity in this country just now is in the states of Antioquia, Tolima and Cauca. Development in Colombia has been retarded mainly by the lack of roads and the instability of its government, which has frightened off timid speculators and investors. The few companies, however, which have faced and overcome these difficulties, are doing well, as, for example, the Salada, (English mine) at Remedios, producing 1,040 oz. per month, and the mines at Titiribi, which do nearly as well. There are hundreds of small bar mines worked in a desultory fashion by Indians, whose only care is to get enough to eat and drink for the smallest possible amount of work.

These bar mines are usually located where a few feet fall of water can be obtained, and the gravel or bank is picked down with bars and picks. It is then allowed to run into a ground-sluice. The ground-sluice is generally cleaned about every 15 days by washing in a batea, in the use of which the Indians are experts. Wherever a sufficient supply of water can be obtained, these mines could be made to pay enormously by the use of monitors and improved hydraulic machinery. Owing to the mountainous and well-watered character of the country, it is generally an easy matter to find the required supply and fall in the vicinity. Nearly one-third of the state of Antioquia is covered with gravel beds, all of which bear a good quality of gold, and could be worked on a large scale with good profit.

Mr. Robert J. Farley, of New York, who owns and works the Topacio and Spanish Fates mines near Zaragoza, Antioquia, is a fair example of what a man of energy and push can do. Mr. Farley went to Colombia 13 years ago as assistant superintendent, and now owns 7 or 8 claims (a placer claim is 9 square miles). Mr. Farley works two monitors with about 35 peons. He uses from 400 to 600 ft. of ground sluice and about 300 ft. of sluice-boxes, using the blocks and quicksilver in the boxes. The water used is brought from a reservoir about two miles distant through ditches and unriveted inverted pipes. His gold averages 900 fine, and he sells it in London.

The San Blas Indians bring large coarse gold to market, but will not allow miners to prospect their part of the country. Some specimens of quartz brought out and shown are marvelously rich.

Some of the native miners work at a profit with a clumsy wooden mill and iron shod stamps, run by the old-fashioned overdrop water wheel, and fully one-half of the precious stuff is lost in the tailings, especially if it is fine gold. It is, of course, impossible for them to work a vein below water level on account of not having pumps and necessary machinery.

All of the rivers of this section have more or less gold, the Porse being the richest and the Cauca and Atrato next. During the five weeks of low water each year, generally from some time in January to February, the natives gather at the Porse and dive with bales for gravel. It is astonishing the amount of gold they can pan in a single day. I kept account of one man's work for 7 hours, and he brought up and washed 63 castellanos or about 10 oz. This river is owned by Medellin companies, and the natives are given one-half of their work, weighed by the owners' scales, and then are compelled to sell the remainder for about one-half of its value.

MEXICO.

Sonora.

(From an Occasional Correspondent.)

General Manning, of Tucson, is having a 10-stamp gold mill erected on the Campana del Oro mine, 30 miles west of the mill now being erected by Prof. W. P. Blake at El Grupo.

Parties from Chicago have arrived at El Plomo, intending to further equip and revive the work on the mine and mill formerly run by Dr. Mueller, and known as the Roscenia.

Prof. Wm. P. Blake is engaged in developing some gold and silver properties in the northern part of the State of Sonora, about 100 miles southwest of Tucson, and 60 miles north of Altar, and has a 10-stamp mill nearly completed.

NOVA SCOTIA.

Eastern Development Company.—A press despatch from Halifax announces that suit for nearly $700,000 has been begun in the Supreme Court. The plaintiffs are the American Loan and Trust Company, and the defendants the Eastern Development Company, both companies consisting chiefly of Boston men. The defendants are owners of the Coxheath copper mines, Cape Breton. The suit is to foreclose a trustee's mortgage for the bondholders. The mortgage is on the Coxheath copper mine and real estate adjoining belonging to the company.

RUSSIA.

Donetz Steel Works.—The capital of this company has just been increased from 2,500,000 to 3,000,000 roubles, and a new puddling plant is to be put in. M. Morel, recently engineer of the Chasse furnaces in France, has been appointed chief engineer of the works.

Sosnowice Coal Mining Company.—This new company, recently organized in France to operate the Sosnowice mines, has in addition purchased the Milowice collieries in Poland, which adjoin the former. The Milowice properties cover an area of about 1,000 acres, and there are three seams at depths of 120 ft., 525 ft. and 660 ft. respectively. Two of the seams are at present being worked by means of three shafts, and the production of coal amounted last year to about 200,000 tons. The Sosnowice and Milowice mines together will make one of the largest coal properties in the Poland district.

TURKEY.

Coal mined at Kozlou, an the Black Sea, about 30 kilos from Eregli, is now being brought to Constan-

tinople. The deposits at Kozlou are extensive and the coal is of very good quality. An analysis recently made resulted as follows: Carbon, 81.5%; ash, 4.3%; oxygen, 8.7%; hydrogen, 5%; sulphur, a trace. Arrangements are being made to extend the workings.

LATE NEWS.

Daniel W. Kissam, a prominent brass founder, of Bridgeport, Conn., died at that place on August 22d, aged 58 years.

The company sinking the coal shafts at Hilton, Iowa, have struck a vein of coal at a depth of 207 ft. The vein is 5 ft. in thickness.

At a depth of something over 100 ft. the shaft of the Hecla mine, in Mercur, Utah, cut into a flow of water last week, and there are now 4 ft. of water in the shaft.

The Johnson Steel Works at Loraine, Ohio, have been awarded a contract for 30,000 tons of steel rails for the electric road between Washington and Baltimore.

There is considerable excitement over the discovery of gold quartz in the Padroli mine in Silver City, Nev., 6 miles from Virginia. Emanuel Padroli has discovered a ledge on his ranch working $100 per ton.

The stockholders of the Consolidated California and Virginia Mining Company have addressed a letter to the directors of the mine asking for an investigation of Superintendent Lyman and his alleged peculiar methods.

The shipments of ore from West Kootenay from January 1st to August 1st are reported to be of the value of $1,295,000. The shipments of ore for July from the Trail Creek district were $128,300. For May the shipments were $92,433 and for June $135,386.

There is considerable excitement at Loveland, Colo., over the recent discovery of gold 12 miles west of that place. A party has just returned from the camp with samples that are said to run from $100 to $400 a ton. Crowds are going there daily to secure claims.

Vanderbilt Mining Company.—An eight-tenths interest in the Star group of mines, near Silver City, Idaho, is to be incorporated under the above name, with a capital stock of $150,000. The Star group is said to be one of the most promising in the southern part of the State, and it is the intention of the new company to proceed with its development on an extensive scale as soon as the necessary preparations can be made. Recent assays from the face of the great ore bodies opened up gave returns of 150 oz. in silver, 50 to 60% lead and about $2 in gold. There is reported to be a large amount of this ore.

Ground has been broken for the concentrating plant to be placed by the Daly-West Mining Company, at Park City, Utah, and the grade will soon be ready for the foundation, as work is being rushed as rapidly as possible. Mr. Daly says that the plant will be constructed at once, but that no decision has been reached as to the kind of machinery that would handle the mine's ores to the best advantage. However, active investigations are being conducted, and the question will be solved as soon as possible. The plant will be equipped with extra boiler and engine power to enable the company to add a reduction plant to the concentrator at any time in the future that the management may deem it advisable. The new mill will be first-class in every particular, and will be located to the big shaft to save the expense of hauling. The company has closed a contract with the Anchor Company for an ample supply of water, though it is possible that the Ontario, Daly and Daly-West may join hands and pipe water from the lakes on the other side of the divide.

The Japan group of mines in Savage, near Telluride, Colo., was sold last week to David Swickheimer and A. J. Clark, of Denver, both well known mining men of means. The purchase price was $125,000. The mine from which the group takes its name is the largest producer, and shows some excellent native and wire silver, running about 1½ oz. in gold. The development work consists of a crosscut from the surface to the vein, 225 ft. in length, then a drift in a continuous body of ore for over 700 ft. But little stoping has ever been done. The crosscut taps the vein 200 ft. below the surface. But little more than development work has been done for the past year, this work alone paying double the expenses of operating the mine, including the dead work and surface development, buildings erected, etc. Mr. Walter Beam still retains an interest in the group and has been selected to act as general manager. New work has been laid out and an increased force will be put on as soon as room is made for them.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Aug. 26.

PRODUCTION OF BITUMINOUS COAL, in tons of 2,240 lbs., for week ending Aug. 17th and year from January 1st:

	1895. Week.	1895. Year.	1894. Year.
Shipped East and North:			
Allegheny, Pa.	38,5 6	2,520.747	661,880
Beech Creek, Pa.	‡	1,593,852	838 310
Broad Top, Pa.	8.431	287 064	224 411
Clearfield, Pa.	75,110	3,476,706	1,344 976
Cumberland, Md	‡	1,917,454	1,622,630
Kanawha, W. Va.	*69,645	*1,961.560	1,142,106
Phila. & Erie R. R.	700	35,555	45,426
Pocahontas Flat Top	†60.572	1,756.047	1,977,031
Total.	258,984	13,551,985	8,136,770

‡ Returns not received.
* Week ending Aug. 7th. † Week ending Aug. 10th.

	1895 Week.	1895 Year.	1894 Year.
Shipped West:			
Monongahela, Pa.	13.919	542,131	417,978
Pittsburg, Pa.	31,662	1,225,803	856,011
Westmoreland, Pa.	35,505	1,229,906	896,275
Total	81.086	2,997,840	2,170,174
Grand total	340,070	16,549 825	10,326,944

Production of coke on line of Pennsylvania Railroad for the week ending Aug. 17th, 1895, and year from January 1st, in tons of 2,000 lbs.: Week, 102,394 tons; year, 1,504,775; to corresponding date in 1894, 1,699,074 tons.

Anthracite.

The anthracite market seems at last to have paused in its downward course. While there is no appreciable improvement in the actual demand, there is a firmer tone. The impression is growing that as the fall draws near a better business at higher prices will be done.

Dealers as yet evince no great desire to lay in stocks, which may be partly accounted for by the fact that none of the companies are anxious to book orders ahead at the figures which have ruled these past two months. The restriction in the output has not been without some effect; many sellers find themselves short of certain sizes and consequently are asking higher prices. This may not be an advance proper, as there is little or no demand and the higher values do not obtain, but it tends to make the market somewhat firmer, or at least, less weak than it was. One company, which has been among the foremost in making low prices now refuses to book orders for egg or stove save at an advance of 25c. from the figures which it openly quoted a fortnight ago. There is still, however, considerable low priced coal of all sizes to be had, and the customer with a satisfactory order to place would have no difficulty in doing so at cheap rates by applying to the proper sellers. Stove is quoted at $3 on board and the other sizes in proportion, though in some quarters egg is scarce and is held at higher figures than stove.

There have been fewer rumors than usual of a definite agreement among the companies, which goes to prove that the market is really growing better. No one doubts that the anthracite trade needs some fixed working plan, but at the same time, if any steps are being taken in the matter none but the highest officials know of it and even they disclaim all knowledge of it.

Bituminous.

The soft coal trade is moving along quietly. Large tonnages are going forward without attracting much notice, and all producers are paying more attention to the getting out of their product and disposing of it on old contracts to their regular customers than to looking for new trade as they know that it is practically all placed at this time, though there is still a quiet, keen competition for spot and transient business as it comes along. Most of the tidewater shipments are going to the far east and the big barges and four masted schooners are playing an important part in transporting these tonnages to the discharging ports at low rates of ocean freight, which are being taken advantage of to cover what contracts have been made. The usual dullness that comes about the 1st of September does not begin to show at this time this year. The territory other than that east of Cape Cod seems to have improved slightly in taking coal, but it is not up to what it will be probably in the course of two months.

Shipments to points local to shipping ports are moving along smoothly through the regular contractors' hands, there being very little transient trade in this line outside of bunker coal. South American business is very quiet, and will probably remain so until late in the fall, when vessels will go to those ports at lower rates than they would now. There seems to be a slight increase in orders on all rail business, but in some instances consumers at points off the main line roads have been obliged to supply cars to the road on which they were located and send them for the coal to the mines that supply them. Transportation from mines to tide is still bothering most of the producers and coal is taking from four days to a week longer than it should to make the run. The Pennsylvania Railroad has reported that all its sidings are filled with loaded cars all the way from near tidewater to the various mines on or feeding their road. At this writing there is a slight improvement apparent, and restrictions that had been put upon producers who have been forwarding large tonnages daily, have been removed. There is no trouble at the shipping ports in loading the coal, which as it arrives is handled promptly, though at times the coal is apt to arrive one day in quantity, and for the next day or two, in very light amounts. This is of course troublesome to shippers, who are unable to properly furnish tonnage promptly, for a quantity of coal arriving where they have quite lately been refused tonnage on account of the non-arrival of this very same coal; and the main line roads have been very arbitrary in cases where tonnage for cars that have arrived, has not been supplied within 24 hours cutting off the shipments from the mines.

In the coastwise vessel market there is a better supply than last week, and rates have dropped back to the figures of a few weeks ago. We quote current rates of freight as follows: From Philadelphia to Boston, Salem, Portland, Portsmouth, Providence, New Bedford, Fall River, New Haven and other sound ports, 60c.; Wareham, 85c.; Lynn, 70@90c.; Newburyport, 70@80c.; Dover, $1.20; Saco, 95c.; Bath and Bangor, 60@65c.; Gardiner, 65c, towage where usual; Baltimore, Norfolk and Newport News are 5@10c. above these rates. In the New York harbor barge market there is a full supply of vessels to be had, and rates are about 17c. from the Amboys to New York harbor, within the towing limits, and 50c. discharge to New Haven and Bridge port.

Buffalo.

Aug. 22.

(From Our Special Correspondent.)

The anthracite coal market continues dull, trade being principally for family orders. The extension of the natural gas pipes over a large area of the city will necessarily reduce the consumption of coal. Prices continue very low.

The bituminous coal trade is running about the average, at nominally unchanged quotations. The supply large and assortment good.

Coke is in good demand for manufacturers, and figures are firm.

Retail sales of coal are nominally made at $3.75 for grate, $3.50 for pea, and $4 for egg, stove and nut, per 2,000 lbs. delivered in city limits.

Lake freights are quiet and steady.

The shipments of coal westward by lake from Buffalo from August 1st to 10th, both days inclusive, were 46,516 net tons, distributed as follows: 11,750 to Chicago, 7,489 to Milwaukee, 1,800 to Duluth, 3,325 to Toledo, 2,350 to Fort William, 3,800 to Superior, 1,200 to Kenosha, 632 to Windsor, 600 to Bay City, 600 to Gladstone, 2,375 to Racine, 600 to Saginaw and 10,000 to miscellaneous points. Also from August 11th to 17th, both days inclusive, aggregating 68,000 net tons, distributed as follows: 16,625 to Chicago, 15,000 to Milwaukee, 6,300 to Duluth, 2,200 to Superior, 700 to Racine, 1,400 to Toledo, 500 to Sault Ste. Marie, 625 to Detroit, 500 to Gladstone, 1,750 to Washburn, 650 to Lake Linden, 200 to Oscoda, and 20,000 to miscellaneous ports. The rates of freight were 50c. to Chicago, Racine and Kenosha; 45c. to Milwaukee, Menominee, Cheboygan and Manitowoc; 35c. to Sault Ste Marie and Bay City; 40c. to Escanaba, 30c. to Portage and Lake Linden, 25c. to Toledo and Detroit, 35c. to Saginaw, and 25c. to Duluth, Superior, Washburn and Gladstone, closing quiet and steady.

The following statistics of the coal trade of Buffalo were compiled by Mr. William Thurstone, the Secretary of the Merchants Exchange of that port.

Receipts and shipments of coal by railway are not reported by request. Receipts by lake, none. Shipments of coal westward by lake for July 299,660 net tons, as compared with 318,672 net tons in 1894 and 254,070 net tons in 1893; for the season to August 1st, 829,829 net tons, as compared with 1,045,079 net tons in 1894 and 1,187,129 net tons in 1893. The receipts of coal by canal for July, 1,633 net tons, as compared with 3,199 net tons in 1894 and 12,227 net tons in 1893; for the season to August 1st, 1,973 net tons, as compared with 4,984 net tons in 1894 and 25,674 net tons in 1893. The shipments of coal by canal for July 1,144 net tons, as compared with 1,942 net tons in 1894 and 969 net tons in 1893; for the season to August 1st, 3,392 net tons, as compared with 2,042 net tons in 1894 and 9,739 net tons in 1893. The aggregate shipments of coal by lake thus far this year to August 1st show a decrease from 1894 of 215,250 net tons and of 357,300 net tons from 1893.

Pittsburg.

Aug. 22.

Coal.—Trade is dull and business entirely neglected. River business is confined entirely to the local trade. The prospect of a rise is as far off as ever, and there may be no water until after the snow falls. The miners at some points are beginning to act with more independence. The miners of the O'Neal Coal Company, at Fayette City, have entered into an agreement with the firm, binding themselves to work for a year at a rate less than decided on by the convention of miners in Pittsburg early in August. They struck about a month ago for the 59c. rate, and were granted their demand, but after the decision of the convention on the scale question, the operators brought the miners down to the old rate. However things ran so unsatisfactory that the agreement was the result. They had been receiving 23c. per car, but the price agreed on by the convention for digging by machinery was 30c. A compromise was entered into and a 27c. rate established, while other miners in the third and fourth pools are working for 23c. The men agree to stand by the agreement, notwithstanding the action of the miners' officials. Most of the idle miners have returned to work.

Connellsville Coke.—The production shows a slight falling off. The summary for the week shows 15,212 ovens in blast and 2,625 idle; the ovens in blast are producing over 150,000 tons, which is about the best showing, taking all things into consideration,

ever made in this region. There is a very noticeable feeling of discontent among the miners and coke drawers in many parts of the region. April 1st, the cokers were granted a voluntary advance of 15%, that was the first step in the general revival of business that has been improving ever since, but the average advance in wages has been about 25%, while the cokers had to be content with their first raise, hence their dissatisfaction. The average time made by the 75 plants in blast was 5·37 days as against 5·49 days the preceding week. The H. C. Frick Coke Company made 6 days at five plants, all the other plants 5 days. The McClure Coke Company made a round 5-day run at its ten plants in blast. W. I. Rainey made 5 days at five plants. The four Couchran plants made a 6-day run. The Furnace plants all made the usual 6-day run. The independent plants made 6 days at three plants and 4 days at two plants. Shipments increased 494 cars, as follows: To Pittsburg, 2,506 cars; to points east 1,789 cars; to points west of Pittsburg, 4,376 cars; total, 8,671 cars. Circular prices show no change.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, August 23d, 1895.

Pig Iron Production and Furnaces in Blast.

Fuel used...	Week ending Aug. 24, 1894.		Week ending Aug. 23, 1895.		From Jan. '94.	From Jan., '95.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
Anthracite.	35	16,800	41	23,257	527,947	664,511
Coke.....	79	95,900	140	148,820	2,836,939	4,663,574
Charcoal...	22	8,760	22	4,428	133,477	135,637
Totals ...	136	116,460	203	176,505	3,498,363	5,465,722

Our reports from the various iron centers indicate that for this season of the year there is a very fair consumption of iron and steel. Prices on the whole are somewhat easier, though they continue steady. While values here and there are shaded to some extent, the indications are that the fall trade will be good with every prospect of a demand that will absorb enough of the production, even if the latter should increase at the present rate, to keep prices up.

NOTES OF THE WEEK.

The British steamer Mary Anning arrived at Baltimore this week from Daquiri, Cuba, with 3,000 tons of iron ore for the Pennsylvania Steel Company.

Pursuant to a call sent out by the secretary 17 members of the Bar Iron Association from various parts of the country held a secret meeting at Cleveland, O., on August 20th. It is understood that they were called together to regulate the price of bar iron and discuss the present condition of the market.

A mortgage for $7,000,000 from the Maryland Steel Company to the Girard Life Insurance, Annuity and Trust Company, of Philadelphia, was filed for record in the clerk's office at Towson on August 20th. This is in accordance with the arrangement made with the creditors of the Maryland and Pennsylvania steel companies, by which the companies were taken out of the hands of receivers and re-organized. By the terms of the mortgage the two steel companies will jointly issue $4,000,000 in bonds to be secured by the mortgage. An additional $5,000,000 in bonds will also be issued under the mortgage, to take up at maturity bonds to a similar amount and now outstanding against the Maryland company. The mortgage covers all the property and franchises of the Maryland Steel Company, including over 1,000 acres of land at and adjoining Sparrow's Point.

At the annual meeting of the Colorado Fuel and Iron Company in Denver, on August 22d, the following directors were elected: E. Thalmann, John G. Moore, Henry W. Cannon, Geo. H. Prentiss, C. D. Simpson, of New York; Henry R. Wolcott, Dennis Sullivan, W. A. James, C. H. Toll, J. L. Jerome, J. A. Kabler, J. C. Osgood, of Denver, and Paul Morton, of Chicago. Messrs. Moore, Cannon, Prentiss and Simpson are new directors. The executive committee is J. C. Osgood, C. H. Toll, W. A. James, Henry R. Wolcott and Dennis Sullivan. The annual report shows: Net earnings, $678,450, an increase of $116,341; surplus over all charges, including preferred stock dividend, and after carrying $92,000 to credit of sinking fund, $4,874. President Osgood telegraphs: "All departments running full. We have doubled capacity of merchant mill, and are still unable to supply demand."

Pig Iron.—In this market there is a rather light but steady consumptive demand for pig iron. Prices, especially in some Southern makes, are reported somewhat easier, though not appreciably lower. It is not unlikely that some concessions may be made for fall delivery, but at present consumers are content to buy for current requirements only.

We quote for Northern brands, No. 1 X, $13.75@$14.25; No. 2 X, $12.75@$13 gray forge, $12.25@$12 75. For Southern irons prices are: No. 1 foundry, $13 50@$14; No. 2 foundry, $12.75@$13.25; No. 1 soft, $12.75@$13.25; No. 2 soft, $12.50@$13; forge, $12.25@$12,75.

Steel Billets.—There is a lull in the demand for billets, due probably to the fact that users have supplies to last them for some time to come, and are deferring ordering ahead in the hope of lower prices. There is no change in quotations, which are $23.50@$24 at tidewater. Rods are quoted at $30@$31 at tide.

Spiegeleisen and Ferro-manganese—There is very little doing in either spiegel or ferro. Quotations are as follows: $21@$22 for 20% domestic spiegeleisen at furnace, and $24@$25 for foreign; $48@$48.50 for 80% foreign ferro-manganese at tidewater.

Merchant Steel.—The demand for merchant steel is fair, though transactions continue individually small. We quote: Tire steel, 1·70@1·85c.; toe calk, 1·90@2c.; Bessemer machinery, 1·60@1·70c.; open-hearth machinery, 1·75@1·85c.; spring, 2@2·10c.; steel hoops, 1·40@ 1·45c. delivered; links and pins, 1·70@1·80c.; soft steel bars, 1·40@1·45c.; steel axles, 1.55@1·65c.

Structural Iron and Steel.—There is not much new business of any magnitude to report in this market, almost all the large contracts having been placed some time ago. Quotations are: Angles, 1·55@1·65c.; beams up to 15 in., 1·65@1·75c.; channels, 1·65@1·80c. on dock; tees, 1·80@1·90c. on dock, all firm.

Plates.—We quote: Steel plates, flange, 2@2·20c; firebox, 2·35@2·50c.; boiler shell, 1·90@2c.; tank, 1·85@1·90c. Universal mill plates are in demand and are held at 1·85@1·90c.

Rails and Rail Fastenings.—There is very little new business doing in standard sections, though one or two fair contracts are in view In light sections and girders a few sales are reported. Quotations are: Standard rails at tidewater, $24.75. In rail fastenings prices remain firm. Fish and angle-plates, 1·40@1·45c. at mill; spikes, 1·80@1·85c.; bolts and square nuts, 2@2·15c.; hexagonal nuts, 2·10@2·20c. delivered.

Philadelphia. Aug. 22.

(From our Special Correspondent.)

Pig Iron.—The market has been quieter than for several weeks as to sales but a noticeable increase in inquiries is mentioned. The parties inquiring do not want iron now but would like to know about prices, brands and probable deliveries, a month hence. The new iron coming in may be all right but it does not bring best prices. It is finding takers and if all right will sell better in the fall. Foundrymen are again figuring on early winter iron and naturally prefer the makes they know, but the quotations are higher than they care to pay. No. 1 is strong at $13.75@$14.25; No. 2 averages $13; mill irons are as high as $12.75 and as low as $11.50. The impression prevails in some quarters that iron will be bought at lower prices before winter, but there is nothing in sight to indicate weakness.

Steel Billets.—Buyers in Eastern Pennsylvania are taking a conservative view of the situation. The big consumers being supplied, which they take for granted, they believe that winter deliveries will be made at a reduction; but agents claim that, from all outward appearances, the demand for the remaining months of the year will be heavier than in the early summer. Current quotations are strong.

Merchant Iron.—Mill owners express themselves as satisfied with the situation. They are catching up. New work, however, is appearing, and, as far as they can see, the mills will have an increase of work this fall, at 1·45@1·55 mill quotations for refined. The demand for common iron will be greater this fall.

Nails.—The local demand is active, and owing to rumors of a further advance many buyers are purchasing more freely. The jobbers say the summer demand has been and is now above what they expected.

Skelp.—Skelp is quoted firm at 1·50@1·16. The mills are well supplied with work, and agents claim that there will be no dearth of work, though the market is quiet just now.

Sheet Iron.—The market has been quiet for a week, but manufacturers express confidence in the early revival of a sufficient demand to keep the mills busy, and prices, at least on the average business, where they are.

Merchant Steel.—Inquiries indicate an early September improvement. Large buyers protest against current quotations. Perhaps they will find prices nearer their views when they come to buy.

Pipes and Tubes.—The summer business has been exceptionally good. Just now there is a lull, but the mill owners say there is not too much capacity for the present condition of the market.

Plates.—Steel tank is strong at 1·75; heavy plates, 1·80; shell, 1·90; flange, 2·00. These quotations represent asking prices, though large buyers are of course favored.

Structural Material.—An increased inquiry is reported and a good deal of new business will be disposed of early in September. Builders of structures and of bridges are preparing to put their orders in early. We quote: Angles, 1·70; beams and channels, 1·80.

Steel Rails.—A good deal of business in small orders for girder rails has crept in and big promises are made for the near future. Small orders for standard sections up to 100 lbs. are being sent to mills.

Old Rails.—There is a light business at $16.

Scrap.—Dealers are making large purchases of scrap. Selling quotations are $14.50 for railroad; $14 for No. 1 wrought; machinery cast, $10.50; heavy steel scrap, $14.

Pittsburg. Aug. 22.

(From Our Special Correspondent.)

Raw Iron and Steel.—In spite of the heat and the absence from business centers of many of the men who initiate and conduct important enterprises, the activity of commercial and industrial affairs has shown no abatement. The great demand upon the iron and steel mills, furnaces, foundries and steel works of the country for their products still continues.

Furnace news is of the most encouraging kind; increasing business has necessitated the addition of another blast furnace to those already operated by the Reading Iron Company and the Keystone Furnace, which was recently leased by the company, was put in blast.

Wire nails have further advanced. At a meeting of the Wire Nail Manufacturers' Association prices were advanced from $2.10 a keg in carload lots to $2.25, and from $2.25 in smaller quantities to $2.40, Pittsburg price. At St. Louis the rate will be 10c. more.

Bessemer pig advanced. Sales, Pittsburg, $14.40@$14.75; Valley delivery, $13.85@$14.10; steel billets, Pittsburg mills, $22@$22.50, according to delivery; steel wire rods, $20@$29 60; sheet bars, $23.75; scrap material and old iron and steel nails are high; muck bar firm and advancing. Finished material is very firm, with an active demand. In fact, prices for all descriptions of iron and steel have an upward tendency.

COKE, SMELTED LAKE AND NATIVE ORE.

Tons.		Cash.
10,000	Bessemer, Sept. to Jan., Valley	$14.00
7,500	Bessemer, Oct., Nov., Dec., Pittsburg	14.40
6,000	Bessemer, Oct., Nov., Dec., Pittsburg	14.50
5,000	Bessemer, Sept., Oct., Pittsburg	14.45
3,000	Bessemer, Sept., Oct., Nov., Pittsburg	14.60
3,000	Bessemer, Oct., Nov., Dec., Pittsburg	14.50
2,000	Gray Forge, Sept., Oct., Pittsburg	12.25
2,000	Gray Forge, Sept., Oct., Pittsburg	12.10
2,000	Bessemer, Sept. to Jan., Valley	14.10
2,000	Bessemer, Sept., Oct., Nov., Valley	14.00
1,500	Gray Forge, Aug., Valley	11.85
1,500	Off Bessemer, spot, Valley	13.50
1,000	Gray Forge, spot, Valley	11.75
500	Gray Forge, Pittsburg	12.10
500	Gray Forge, Pittsburg	12.15
200	No. 1 Foundry, Pittsburg	13.50
200	No. 2 Foundry, Pittsburg	12.50

CHARCOAL.

400	Cold Blast	$24.00
100	No. 2 Foundry	17.25
75	Cold Blast	24 00
50	White Charcoal	20.00
50	No. 2 Foundry	17.30
50	Cold Blast	24.00

BLOOMS, BILLETS AND SLABS AT MILL.

4,000	Billets, Oct., Nov., Dec., at mill	22.40
2,000	Billets, Sept., Oct., mill	22.25
2,000	Billets, Oct., Nov., Valley	21.50
1,500	Billets, Sept., mill	22.15
1,000	Billets, Sept., Oct., Wheeling	21.60
500	Billets, Oct., Nov., mill	22.25
500	Billets, Prompt, mill	22.00

SKELP IRON.

800	Sheared $1.75 4 m.
600	Wide gr'v'd 1.50 4 m.
500	Nr'w gr'vd 1.50 4 m.

SKELP STEEL.

1,000	Sheared $1.70 4 m.
700	Wide gr'vd. 1.40 4 m.
500	Nr'w gr'vd. 1.40 4 m.

MUCK BAR.

500	Neutral, Deliv'd $22.65
400	Neutral, Deliv'd 22.50

SPELTER.

100	Prime Western $4 16

FERRO-MANGANESE.

100	80% Sept., Oct $52.50

SHEET BARS.

1,000	At maker's mill $23.75

STEEL WIRE RODS.

3,000	5-gauge, at maker's mill $29.60

BLOOMS, BILLETS AND BAR ENDS.

1,200	Billet and Bar ends $14.75

OLD RAILS.

1,000	Steel Rails, short $15.25
800	Iron Rails 18.50
200	Iron Rails 18.00

SCRAP MATERIAL.

800	Heavy Steel, gross $15.00
300	No 1 wrot., net 14.10
300	Car Wheels, gross 11.50
300	Cut Pipe, net 14.00
200	Iron Axles, gross 20.00
200	Bush Scrap, net 13.00
200	Plate Steel Scrap, gross 11.25

BY TELEGRAPH.

Pittsburg, Aug. 23.—The iron market is in an excited condition. There have been some large sales of Bessemer iron at $15.25.

METAL MARKET.

NEW YORK, Friday Evening, Aug. 23, 1895.

Gold and Silver.

Prices of Silver per Ounce Troy.

August.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. to $1.	August.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. to $1.
17	4.90¼	30 7/16	66¾	.516	21	4.90	30¾	66⅝	.515
19	4.90¼	30 7/16	66¾	.516	22	4.89¾	30⅜	66⅝	.515
20	4.90	30⅜	66⅝	.515	23	4.89¾	30⅜	66⅝	.515

The market has remained steady, without any special feature.

The United States Assay Office in New York, reports the total receipts of silver at 139,000 oz. for the week.

Gold and Silver Exports and Imports.

At all United States ports, July, 1895, and years 1895 and 1894 in coin and bullion:

	Gold.		Silver.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
July	$3,867,518	$574,049	$4,814,031	$1,073,553	E. $7,033,917
1895..	39,098,956	26,558,995	28,711,458	5,386,014	E. 35,865,405
1894..	85,150,380	12,857,402	26,928,700	5,542,529	E. 93,684,149

Imports and exports of gold and silver in ores for the seven months to July 31st are reported as below:

	Gold.		Silver.	
	1894.	1895	1894.	1895.
Imports	$417,257	$999,639	$4,097,448	$6,569,482
Exports	19,719	317,529	183,556	36,142
Excess. Imports	$397,538	$682,110	$3,913,892	$6,533,340

These imports and exports in ores are not included in the table of exports and imports of coin and bullion given above.

Adding the exports and imports in ores to those in coin and bullion, we have the following statement for the seven months of the present year to July 31st:

	Exports.	Imports.	Excess.
Gold	$39,416,485	$27,558 634	E. $11.857,851
Silver	28,747,600	11,955,496	E. 16,792,104
Total	$68,164,085	$39,514,130	E. $28,649,955

The statement includes all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending August 23d, 1895, and for years from January 1st, 1895, 1894, 1893 and 1892:

	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$4,328,200	$968,611	$685,300	$36 453	E. $4 008,436
1895..	43,738.828	25,237,873	96,353.498	1,172,221	E. 43,682,232
1894..	81,869,435	12,791.494	23,566,525	1,099,062	E. 91,551,404
1893	69.230,127	45,572,236	21,111,717	1,667,518	E. 43,135,360
1892..	55,355,363	6,128,810	14,248,135	1,387,377	E. 61,787,311

FINANCIAL NOTES OF THE WEEK.

The imports and exports of merchandise in the United States for the seven months ending July 31st are reported by the Bureau of Statistics, Treasury Department, as follows:

	1894.	1895.
Exports	$456,863,637	$443.465.860
Imports	397,680,928	465,069,683
Excess	Imp., $59,182,709	Exp., $21,603,823

The imports and exports of gold and silver will be found at the head of this column. Taking merchandise and the precious metals (including those in ores) together, we have the following balance for the seven months of the year:

Excess of exports, gold and silver	$28,649,955
Excess of imports, merchandise	21,603,82
Net apparent balance in favor of U. S.	$7.046.132

We use the words "apparent balance," because, as we have frequently explained, nothing is more deceptive than this so-called "trade balance," which is usually very far from expressing the true state of our accounts with foreign countries.

The official figures of the gold reserve on August 22d were $101,718,527, a net gain of about $62,000 over what the Treasurer expected to have on hand after setting off the last deposits of the Bond Syndicate against the heavy withdrawals of August 20th. The sum of $100,000 withdrawn on Wednesday has not yet been deducted from the official figures of the reserve, but is likely to be offset by further gains on ordinary transactions. There was a gain on the 22d of $98,529 at assay offices, but this was reduced by losses at the Sub-Treasuries. The gold bullion in the Treasury on the 22d was $60,226,867 and the gold coin was $89,443,358, against which gold certificates are outstanding to the amount of $47,951,699.

For convenience of comparison, we have grouped together in the table below the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Bank of England	$202,110,000	.....	202,110,000
1894	197,990,000	.....	197,990,000
Bank of France	410,550,000	$252,130,000	662,6 0,000
1894	380,200,000	253,980,000	634,180,000
Imp. Bank of Germany	.....	.....	254,970,000
1894	.....	.....	242,530,000
Austro-Hungarian Bank	102,350,000	66,399,000	168 749,000
1894	63,225,000	79,510,000	142,735,000
Netherlands Bank	21,425.000	34,699,000	56,124,000
1894	22,639.000	34,504,000	57,143,000
Belgian National Bank	.....	.....	20,658,000
1894	.....	.....	22,007,000
Bank of Spain	40,021,000	60,364,000	100,385,000
1894	29,716,000	46,283,000	85,999,000
Bank of Italy	60,380,000	10,860,000	71,240,000
1894	.....	.....	.....
Imp. Bank of Russia	351,530,000	54,210,000	405,770,000
1894	.....	.....	.....

The returns are of date August 22d, except the Bank of Italy, whose return is dated July 1st, and the Bank of Russia, July 1st-13th. The Bank of England reports its gold only, not considering silver at all. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

The United States Treasury statement issued on August 23d, covering actual results of the two days preceding, shows for the dates named the following balances in excess of outstanding certificates, compared with that of the day preceding:

	August 21.	August 20.
Gold	$101,764,524	$101,718,527
Silver	28,726,929	28,803,315
United States notes	23.350,695	22,930,203
Treasury notes, etc	32,207,602	32,107,429
Total	$186,059,750	$185.559,574

Total government receipts for the day, $1,030,209; expenditures, $866 000; excess of receipts, $164,209. For the month to date: Receipts, $21,822,513; expenditures, $28,768,800; excess of expenditures, $6,946,227.

Customs receipts on August 23d were $575,740; internal revenue, $436,186; miscellaneous, $20,283; national banknotes for redemption, $341,768.

The gold shipments arranged for August 24th are much smaller than expected. Hoskier, Wood & Co. will ship $600,000; Hard & Rand, $250,000; Handy & Harmon, $150,000, and Nesslage & Fuller, $100,000, making a total of $1,100,000, of which $985,000 was taken from the Sub-Treasury for United States notes.

Domestic and Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked.
Mexican dollars	$0.53¼	$0.53¾
Peruvian soles and Chilean pesos	.48	.50
Victoria sovereigns	4.88	4.92
Twenty francs	3.90	3.93
Twenty marks	4.78	4.82
Spanish 25 pesetas	4.78	4.83

Other Metals.

Copper.—The market has continued very firm, with no Lake copper available below 12¼, at which price very little, if anything, can be had from first hands. A very large demand exists for electrolytic copper, and sales have been made up to the end of the year, mostly at private terms, supposed to be from 11¾@¾. A scarcity of casting copper is noticeable, and 11½@¾ has been paid.

Producers of Arizona pig copper are entirely out of the market. No arrivals of foreign copper have so far been reported, but we understand that there are several lots of Arizona pig copper afloat from Liverpool to New York.

Reports from the manufacturers are very encouraging; they are all overcrowded with orders and find great difficulty in meeting their engagements. We hear that bids were received from abroad for both Lake and electrolytic copper at quite good prices, but being somewhat below the market they were refused.

The foreign market is considerably firmer, and g. m. b. has advanced to £46 17s. 6d.@£47 for spot, and £47 5s.@£47 7s. 6d. for three months prompt, with quite a large business doing from day to day. For the finer grades of copper very high prices continue to be paid, and consumption abroad is said to be very good. Refined and manufactured we quote: English tough, £50@£50 10s.; best selected £50 15s.@£51; strong sheets, £55 10s.@£56; India sheets, £53@£53 10s; yellow metal, 4¾d.

Copper Exports.—The exports of copper from the port of New York during the week ending August 22d, 1895, as reported by the New York Metal Exchange, were as follows.

Copper:		
London—Ohio	Ingots	62 tons.
" —Mississippi	Wire	13 "
Havre—La Normandie	C. H. Ingots	150 "
Liverpool—Lucania	Pigs	38 "
" "	Ingots	12 "
Glasgow—Nebraska	Ingots	5 "
Havre—La Touraine	C. H. Ingots	100 "
Hamburg—Marsala	Ingots	30 "
Stettin—Island	Ingots	20 "
Rotterdam—Maasdam	Plates	125 "
" "	Ingots	100 "
Matte:		
Liverpool—Lucania		109 tons.

Exports of copper from Baltimore for the week ending August 22d are reported by our special correspondent as follows:

Copper:		
Antwerp—Norse King	5,412 bars.	692,128 lbs.
" " " "	68 cakes.	22,338 "
" " " "	1,335 ingots.	24,400 "
Havre—Mentmore	8,619 bars.	773 210 "

This is a total of 655 long tons of copper, and 109 tons of matte from New York, and of 674 tons of copper from Baltimore; making a total export of 1,329 tons of copper, and 109 tons of matte exported for the week.

Copper Imports.—The imports of copper at the port of New York during the week ending August 22d, 1895, as reported by the New York Metal Exchange, were as follows:

Liverpool—Etruria	Bars	125 tons
Liverpool—Nomadic	Bars	100 "
Swansea—Kansas City	Cakes	12 "

Tin eased off somewhat earlier in the week, but has since become much firmer, and the consumptive demand continues to be most satisfactory. We quote for spot and delivery up to the end of the year 14½@¾. Abroad the market opened at £63 17s. 6d., and gradually hardened, closing at the best at £64 10s. for spot, and £64 17s. 6d. for three months prompt.

Lead has been rather dull, and transactions were more of a retail character, but no pressure to sell exists, and we quote 3.50@3.52½. The foreign market was steady at $11 16s. 3d.@£11 18s. 9d. for Spanish, and 2s. 6d. more for English.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is quiet at 3·30, with transactions very light. Sellers are unwilling to name lower rates and buyers are well stocked and do not care to buy unless concession is made.

Spelter.—The advance in price has made further progress, and we have now to quote $4.25@$4.30, delivered, New York. Galvanizers are very busy, and stocks in the West are very small indeed. The price of good ordinaries in London is quoted £15.10, and specials £15. 12s. 6d.

Antimony.—No change can be reported; Cookson's 7¾, Hallett's 7⅛@½.

Aluminum.—The standing quotations, according to producer's price list, are given below, the three prices named being respectively for small lots, for orders of 100 lbs. or over, and for orders of one ton or over: No. 1 metal, over 98% pure, in ingots ready for rolling, etc., 60c., 58c. and 55c. per lb. No. 1 metal, in ingots for remelting, 55c., 52c. and 50c. per lb. No. 2 metal, over 94%, but less than 98%, in ingots for remelting, 53c., 50c. and 48c. per lb. Rolled sheets, No. 1 metal, 80c.@$4.40 per lb., according to size and thickness. Wire, $1@$2.50 per lb., according to gauge. Tubes, from 14c.@$3.15 per linear foot, according to thickness and diameter. Castings, from 90c. per lb. up, according to pattern and size of order.

Abroad the price is fixed by the Neuhausen Company, which quotes 5 fr. per kilo.—equivalent to 45c. per lb.—at works in Switzerland for small orders; a discount is made on large sales. Quotations in Paris, for large orders, are 5 fr. per kilo. for ingots; 6 fr. per kilo. and upwards for sheets; 10 fr. per kilo for wire, 0·5 mm. and over; 15 fr. per kilo. and upwards for sheets. For small orders the quotations are 6·50@7 fr. per kilo.

Bismuth.—Quotations are nominally $2@$2.50 per lb., according to size of order.

Magnesium.—The maker's prices are as follows, at works in Germany: 27 marks per kilo.—equivalent to $2.94 per lb.—for ingots; 26 marks per kilo. for bars; 36 marks per kilo. for powder, and 38 marks for ribbon and wire. For orders of less than 10 kilos., 1 mark per kilo. must be added for ingots or bars, and 2 marks for wire, etc.

Iridium.—The demand is very small, and only occasional sales are made. The price varies from $25 to $35 per ounce, according to order and quality.

Nickel.—Quotations continue 35@38c. per lb., with a little more business reported.

In London quotations are 13@13½c. per lb. In Paris quotations are 4·25 @ 4·50 fr. per kilo. (say 37@44c.) for pure metal; 2·25@3·75 fr. for a 50% copper-nickel alloy.

Platinum.—Prices are well held. We continue to quote $11.50 per ounce, New York, for large lots, while the London price is 45@46s. per ounce.

For chemical ware, best hammered metal, Messrs. Eimer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams; for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes 41c., 43c. and 45c. per gram. Wire and foil are 40c., 41c. and 42c. per gram. The current retail price for crucibles is 50c. per gram.

Phosphorus.—Quotations current are 50@52½c. per lb., New York or Philadelphia.

Quicksilver.—Prices are unchanged at last week's reduction, and we quote $39.25 per flask, New York. The London price is £7 2s. per flask, with £6 19s. 6d.@£7, quoted from second hands.

Receipts of quicksilver at San Francisco for the seven months ending July 31st were 17,445 flasks, which compares with 16,147 flasks for the corresponding period last year, and 14,513 flasks in 1893. Exports by sea for the seven months were: New Zealand, 20 flasks; Central America, 201; Mexico, 2,769; British Columbia, 44; New York, 6,000; total, 9,034 flasks, against 9,886 last year. Shipments overland for the six months ending June 30th (July statement not yet received) were 6,217 flasks, against 5,401 flasks last year.

Sodium.—In England makers' price is equal to 90@96c. per lb., according to quantity. Occasional sales only are reported here, usually on private terms.

Tungsten.—The following quotations for this metal and its compounds are furnished us by the manufacturers: Tungsten metal (powder) 98% pure, 70c. per lb.; tungstic acid, 45c. per lb.; tungsten salt (tungstate of soda), 30c. per lb. These quotations are for large lots. For ferro-tungsten the quotations for ton lots of the various grades are as follows: 60% metal, 60c. per lb.; 50% alloy, 45c. per lb.; 37% alloy, 33c. per lb. There has been no recent change.

Imports and Exports of Metals.—Imports of metals into this port for the week ending August 10th are reported by the New York Metal Exchange as follows: 125 tons Straits tin from Bremen; 325

tons Straits tin and 25 tons Banca tin from Holland; 625 tons tin from London; 22,366 boxes tinplates from United Kingdom.

Imports and Exports of Metals.—Exports of metals (other than copper) from this port for the week ending August 16th are reported by the New York Metal Exchange as follows: 34 tons tin scrap to Antwerp; 40 tons tin scrap to Amsterdam; 25 tons sulplate of copper to Mexico; 12 tons zinc skimmings to Bristol.

Imports of metals into this port for the week ending August 16th are reported by the New York Metal Exchange as follows: 150 tons tin from London; 100 tons tin from Singapore; 100 tons Straits tin; 10 tons Banca tin and 100 tons German lead, duty paid from Holland; 100 tons lead, duty paid from Spain; 400 tons Belgian lead, duty paid, from Antwerp.

Arrivals at the port of Philadelphia for the week ending August 17th were: 5 800 tons iron ore from Cuba, 150 tons pig iron and 100 tons ferro-manganese from Liverpool, 25 tons tin from London, 9,943 boxes tin plates from the United Kingdom.

Arrivals at the port of Baltimore for the week ending August 17th were: 153 tons ferro-manganese, 84 tons pig iron and 5,343 boxes tin plates from Liverpool.

CHEMICALS AND MINERALS.

New York, Friday Evening, Aug. 23.

Heavy Chemicals.—There is not much change to report in this market. For caustic soda there has been a somewhat improved demand for future delivery, but buyers do not seem anxious to book many contracts at present values, which they consider too low. Carbonated soda ash and alkali have ruled steady, with an increased inquiry. Our Liverpool correspondents write that there has been a hitch in the negotiations between the foreign makers, but this fact has not yet weakened the market here to any great extent. Bleaching powder has been in good request and several sales are reported at unchanged prices. Our quotations this week are as follows: Caustic soda, 60%, 2@2·10c. for spot, other tests, futures, 1·95@2·10c. Carbonated soda ash 48%, is ·95@1c.; 58%, ·90@65c.; according to quantity and delivery. Alkali is 90@1c., according to test. Bicarb. is 1·80@2c. for spot. Bleaching powder is $1.85@$1.95. Sal soda, $2¼@65c.

Acids.—There is only the usual jobbing demand for acids just now, but makers report that stocks do not accumulate, and hence prices are well maintained. We quote, per 100 lbs. in New York and vicinity, in lots of 50 carboys or more: Acids, acetic, $1.40@$1.65 (in barrels). Muriatic, 18°, 75@85c.; 20°, 90c.@$1.15; nitric, 36°, $3.25@$4; 40°, $4@$4.50; 42°, $4.50@$5.25. Mixed acids according to mixture; oxalic, $7@$7.50. Sulphuric, 60°, 60@70c.; 66°, 70@85c. Blue vitriol is quoted at $3.75@$4.

Brimstone.—The market for Sicilian brimstone is somewhat firmer. Quotations for best unmixed seconds are as follows: Shipments, and nearby arrivals, $16@$16.25. Best thirds are 50@75c. less.

Fertilizing Chemicals.—There is no improvement in this market, which continues very dull. The usual deliveries of the potash salts on regular contracts are going forward. The ammoniates have been in very light demand and prices are consequently slightly weaker. Our quotations this week are as follows: Sulphate of ammonia, gas liquor. $2.65; bone, $2.55. Dried blood high grade, $1 80@$1.85; low grade, $1.60@$1.70, per unit. Azotine, $1.75.@$1.85. Concentrated phosphate (3.% available phosphoric acid), 70@71½c. per unit. Acid phosphate. 13% to 15%, av. P_2O_5, 57c. per unit at seller's works in bulk. Dissolved bone black, 17% to 18%, P_2O_5, 90c. per unit. Acidulated fish scrap, $12, and dried scrap with few or no sales, nominally $21 f. o. b. fish factory. Tankage, high grade, $19@$2'; low grade, $18@$19. Bone tankage, $21; ground bone, $19@$20. Bone meal, $21@$22.

In lots of 50 tons on contracts we quote, per 100 lbs: Double manure salts, 48-53% (basis of 48%): New York, Boston and Montreal, $1.10; Philadelphia and Norfolk, $1.12½; Charleston, Savannah, Wilmington, N. C., and New Orleans, $1.15. Sulphate of potash, 90%, and minimum, 96% respectively (basis of 90%): New York, Boston and Montreal, $2 08@$2.09; Philadelphia and Norfolk, $2.10½, Charleston, Savannah, Wilmington, N. C., and New Orleans, $2.13.

Muriate of Potash.—Quotations for lots of 50 tons are as follows: 80-85% and minimum 95%, respectively (basis of 80%): New York, Boston and Montreal, $1.78; Philadelphia and Norfolk, $1.80½; Charleston Savannah, Wilmington, N. C., and New Orleans, $1.83.

Kainit.—Prices for kainit (minimum 23%) are as follows for invoice and actual weights respectively: New York, Boston and Philadelphia, $8.80; Norfolk, $9.15; Charleston, Savannah, Wilmington, N. C., and New Orleans, $9.55.

Nitrate of Soda.—We quote $1 70@$1.72½. Shipments are held at $1.75@$1.77½ according to position.

Liverpool. Aug. 13.

(Special Correspondence of Joseph P. Brunner & Co.)

Trade has gone off a little during the last week, but quotations are practically unchanged. With regard to the recent reports respecting combination arrangements pending between the leading ammonia soda makers here, it is now rumored that some hitch has taken place and that the negotiations have fallen through for the present. No reliable information is obtainable, however.

In spite of bad times, Brunner, Mond & Co., have just announced their dividend for the six months ending June 30th last, at the rate of 30% per annum, with a surplus of £90,300.

Soda ash is in fair request and late rates are well maintained, the spot range for tierces being about: Leblanc ash, 48%, £3 10s.@£3 15s.; 58%, £3 15s @£4; Ammonia ash, 48%, £3@£3 5s.; 58%, £3 5s.@£3 10s. per ton net cash; bags 5s. per ton less. Soda crystals are in moderate compass and steady at £2 5s. per ton, less 5% for barrels.

Caustic soda is quiet, and we quote spot range as follows: 60%, £6 5s.@£6 10s.; 70%, £7 5s.@£7 10s.; 74%, £8 5s.@£8 10s.; 76%, £9 5s.@£9 10s. per ton, all net cash.

Bleaching powder is meeting with a fair inquiry, and for hardwood packages quotations range from £7@£7 5s. per ton net cash, according to destination. Chlorate of potash is inactive and nominally quoted at from 4¾d @4¾d. per lb., but there is practically nothing doing to test the market. Bicarb. soda is in steady demand at £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia is a trifle easier, the prices ranging from £9 12s. 6d.@£9 17s. 6d. for good gray, 24 and 25%, for double bags f. o. b. here, as to quality. Nitrate of soda is inactive at £8 7s. 6d.@£8 10s. per ton, less 2½% for double bags f. o. b. here. Carb. ammonia, lump, 3½d. per lb.; powdered, 3¾d. per lb., less 2½%.

MINING STOCKS.

Complete quotations will be found on pages 190 and 191 of mining stocks listed and dealt in at:

New York.	Colorado Springs.	Paris, France.
Boston.	Duluth, Minn.	Mexico.
Philadelphia.	Helena, Mont.	Shanghai, China.
N. Y. Coal Stocks.	N. Y. Industrials.	Valparaiso, Chile.
Denver, Colo.	Salt Lake, Utah.	
Aspen, Colo.	London, England.	

New York, Friday Evening, Aug 23.

The trading in mining shares has been of a desultory nature. There is considerable talk of an approaching "boom," but few signs point that way.

There has been little change in the Comstocks. Of Consolidated California & Virginia 600 shares sold at $2.80@$2 90. Comstock Tunnel was comparatively quiet, only 1,100 shares being sold at 9@10c. Other sales were: 100 shares of Bullion at 15c.; 200 shares of Best & Belcher at $1.20; 200 shares of Hale and Norcross at $1.75; 800 shares of Mexican at 70@75c.; 400 shares of Ophir at $1.60, 500 shares of Potosi at 70c.; 200 shares of Savage at 75c., and 600 shares of Yellow Jacket at 40@50c.

Of the Colorado shares Lacrosse was the most active and this week 5,700 shares changed hands at 19@20c. Other sales were: 1,100 shares of Leadville Consolidated at 13@15c., and 1,000 shares of Little Chief at 15c.

A press dispatch from Denver, Colo., dated August 23d says that figures gathered from five of the leading smelting firms of Denver, showing the quantity of ores that has been purchased by them from miners of Colorado from January to June, 1895, have just been published there, and show a large increase in the gold output of Colorado. The figures are: lead, 38,758,019 lbs.; silver, 8,053,327 oz.; gold, 197,351 oz.; and copper, 2,311,590 lbs. These figures of course are not official.

There was a sale of 25 shares of Ontario at $9.

At the annual meeting of the Calumet & Hecla Mining Company, held in Boston on August 21st, the following directors were elected: Alexander Agassiz of Cambridge, Francis L. Higginson, of Boston, Francis W. Hunnewell, of Wellesley, Quincy A. Shaw, Jr., of Boston, and James N. Wright, of Detroit. These were chosen by a vote of 70,176 shares, of which 340 shares only were represented personally, and the balance by proxy. At the last annual meeting 73,684 shares were represented, mostly by proxy. The number of dividend checks sent to stockholders at the date of the last payment was 2,490.

Notwithstanding the production of additional mineral, the president said the company had continued to gain in development work, opening the past year 3 or 4 months more ground than had been stoped. The ground was now opened for stoping for 11 years production. The development work began in 1876 and in the 20 years the company had averaged to open 18 months' ground per annum, while exhausting 12 months upon the average. The vertical shaft would be sunk below the vein 300 or 400 ft. further or until a crosscut could reach the deepest part of the vein upon the company's property. This would test the mine below the level of the latest Tamarack shafts. The sinking of this shaft will be finished within three or four months and then the vein will be tested by the crosscut. This vertical shaft would never have been sunk except for reserve in the event of fire.

President Agassiz explained that since the printing of the report the mine had improved at the south end, and the No. 12 shaft, which had been barren for several levels, was now opening out copper ground, growing richer and wider. This is at the 2,700 ft. level. In the estimate which President Agassiz made some years ago as to the life of the mine, he had counted part of the south ground rich and part of it poor, and upon the whole the mine had shown no reason to decrease his estimate. All the shafts at the south end of the mine are now in good ground. He also said that the additional compressors had been erected for the purpose of supplying air to the considerable number of men it was proposed to work on the two or three amygdaloid lodes running parallel with the Calumet & Hecla lode. It was proposed to open these lodes at two or three levels.

A press despatch from San Diego, Cal., says that there will be no trouble in the transfer of the Ybarra Mining Company's property on the peninsula to the new management. James W. Abbott, the new superintendent of the mine, who recently went down to take the control of the property off the hands of Don Emiliano Ybarra, says he was most courteously received, and that there was no trouble whatever on his visit. He came back to California on business, and not because Don Emiliano had refused to give up control. There was never any question of giving up the property.

Shipments of ore and concentrates from the Horn Silver Mining Company's property last month amounted to 120 cars—about 1,907 tons. More men are being employed and more ore is being shipped by this company at present than for a long time. There are about 175 in all on the pay-roll. Two new and extra heavy boilers are being put in place at the mill. Heretofore all steam has been generated by the boilers at the mine and the steam was conveyed by pipes to the mill. The water used at present is brought from Milford by the Union Pacific at a cost of $12 per car of about 4,000 gals. When the new boilers are ready the intention is to use Frisco water in them. Frisco water contains a great deal of mineral and has ruined all boilers in which it has been used, but the management believe the new boilers will not be injured by it.

Boston. Aug. 22.

(From Our Special Correspondent.)

The market for copper shares the past week has been very tame compared to the extreme activity of a few weeks ago. It is evident that the "bloom is off the rye" for the time being at least, although there is a good undertone to the market and prices recover very quickly whenever a disposition to buy is shown. Boston & Montana continues to be the principal feature and the transactions in this stock aggregate more than all others combined. The stock reached its highest point early in the week at $91, the lowest being $85½, on the 20th; to-day it sold at $89¼, and closed at $88½. Butte & Boston, after selling at $22½, declined to $20½, with a later rally to $21¾. Calumet & Hecla is in steady investment demand at $310. Tamarack ruled lower this week, selling down from $165 to $160 on moderate sized lots. Quincy is in good demand and sold from $149 to $146, which was the closing price. The scrip sold at $81½ to $80½. Franklin declined to $19¾, after selling at $21½. Later sales were at $20. Osceola declined from $38 to $35½, with a later rally to $36.

Atlantic sold $23¾, declined to $21½ and rallied to $24. Kearsarge was rather weak and sold down to $18½, but rallied to $20. Tamarack, Jr., declined from $24 to $22, and later sold at $23. Arnold declined to $2½ and recovered to $2¾. Centennial, after selling at $2¾ declined to $1¾ and closed at $2. Wolverine touched $7½ and recovered to $8½. Tecumseh sold at $3¼, Allouez at $1¼ and Copper Falls at $9¾. Bonanza sold at .0@55c. Gold stocks have been very quiet, but steady. Mercer sold at $45@$47, Santa Ysabel at $14. Napa Quicksilver sold at $8 and Catalpa at 12½c.

Colorado Springs.

BY TELEGRAPH.

Messrs. Gardner & Co. wire us the closing quotations for the week ending August 22d as follows:

Name of Company.	16	17	19	20	21	22
Anaconda.	.....	.49½	.50	.50	.50	.50
Argentum-Juniata	.....	.74	.74	.78	.80	.80
Isabella	.....	.23	.23	.23	.23	.23
Mollie Gibson	.....	.66	.66	.66	.65	.65
Portland	.....	1.75	1.95	1.95	1 90	1.90
Union	.....	.29	.25½	.27	.25	.22
Consolidated	.....	.....	14¼	.14½	.16	.15

Salt Lake City, Utah. Aug. 17.

(Special Report of James A. Pollock.)

The mining share market continues interesting despite these hot August days. If the present is any guide to the future the fall business will be large. There is certainly great concern being displayed in mining and mining investments, and our gold production is increasing rapidly.

There has been an increasing demand for Ajax of late, and a number of sales were consummated at 40c. Buying of Alliance shares seems to have temporarily ceased; at least there has been a lull in transactions. Anchor has a tendency to take a lively part in the market. Nothing is doing in Bullion Beck. There is no prospect of a dividend for some time to come.

Centennial Eureka paid its regular dividend of $1 per share on the 15th; total to date, $1,260,000. I have it on reliable authority that there was never more high grade ore exposed than at present. There is a variance of opinion in regard to Comstock. The owners of the property claim to have a great showing of ore that assays high, but others dispute the claim. The shares fluctuated wildly during the week on limited transactions. The stock is closely held and looks as if it were being bulled for a specific purpose. Daly-West was in demand and several

blocks of stock changed hands; a heavy buying movement is likely to set in.

Nothing is doing in Horn Silver or Lucky Bill. The latter is offered in small blocks at 20c. per share. Mercur is in strong demand after the declaration of the regular dividend of 12½c. a share payable on the 20th. Ontario is being bought rather heavily by Park City people. The Silver King Company declared a dividend of 25c. per share, $37,500, payable September 7th. Utah paid a dividend of 1c. per share, $1,000, August 12th.

San Francisco.

BY TELEGRAPH.

San Francisco, Cal., Aug. 23.—The opening quotations to-day were as follows: Best & Belcher, $1.05; Bodie, 10c.; Bulwer, 5c.; Challar, 60c.; Consolidated California & Virginia, $2.70; Gould & Curry, 54c.; Hale & Norcross, $1.85; Mexican, 68c.; Mono, 10c.; Ophir, $1.55; Savage, 36c.; Sierra Nevada, 43c.; Union Consolidated, 47c.; Yellow Jacket, 37c.

London. Aug. 10.

(From our Special Correspondent.)

General activity has been the order of the day ever since the bank holiday on August 5th. As a rule the City and Stock Exchange extend the holiday throughout the entire week, but this year everybody was in his place early Tuesday morning. A good idea of the magnitude and extent of transactions may be gained from the immense labor involved in the settlement, the first day of which fell to-day. Every department of the mining market has shared the activity, even Indians and Americans having attracted attention.

In the South African market there have been several features of special interest. In the first place the boom in the shares of the British South African Company has continued without interruption and blocks are changing hands in large quantities at £7 per £1 share. All shares offered appear to be absorbed at once. There is of course some gigantic scheme at the back of this boom known only to Mr. Rhodes and his immediate circle. We shall know the reason probably when he visits this country in a month or two. It must be said, however, that every circumstance now points to the success of the company. The rush to Buluwayo has set in in earnest. Then again American mining engineers are on the spot and are beginning to develop properties in a practical manner, instead of in the methods hitherto pursued. Lastly, a new government has come into power into England pledged to the consolidation and extention of the British Empire, and the colonial minister, Mr. Chamberlain, is thoroughly in sympathy with colonists.

Two new companies of importance have during the past fortnight been introduced quietly on the London market. The first is the Barnato Consolidated Mines, Ltd., which has been formed to acquire the interest of the Barnato firm in the deep level companies of the Witwatersrand; and the second is the Robinson Bank, formed not so much to conduct ordinary banking business as to act as a trust company for investments in South African mines, like the Johannesburg Consolidated and the Consolidated Goldfields of South Africa. No advertisements of these new ventures appeared, but the stocks were suddenly introduced on the exchange. Barnato Consolidated shares of £1 are selling at nearly £5, and Robinson Bank's £1 shares are at £11. Barnato and Robinson are names highly honored in connection with South African finance and as they were born bulls confidence is expressed in all their manœuvers. Mr. Barnato is now on his way to England again, and one may expect some lively times shortly.

For the same reason as mentioned above, all the Barnato gold stocks are very strong, but Primrose has attracted the most attention. The shares in this company have risen from £7 to £8 5s. during the past week.

The yield of gold in the Witwatersrand for July is slightly less than that for June, and has temporarily sunk below the 200,000 limit. The actual figures are 199,453 oz., as compared with 200,941 in June and 167,953 in July, 1894.

In the West Australian department activity is the rule, but no mine has attracted particular attention. The fire at the Broken Hill proprietary is now confined to one small section and has been effectually prevented from spreading further. The directors state that the expenses incurred by the fire will figure out at about $20,000. Six of the furnaces have been used for making carbonic acid gas for pumping into the burning sections, but all the other furnaces and plant are again in full operation. The publication of the prospectus of the Smelting Company of Australia has had a good effect on the market for Broken Hill shares, because it is argued from this that the sulphides will find a market sufficient to provide a dividend for holders of Broken Hill shares. It is announced that no dividend will be declared for August, but that there is every prospect of a monthly shilling dividend for the remainder of the year.

The Proprietary Gold Recovery Company, Limited, has gone into liquidation. It will be remembered that this company was formed a year ago to work and develop the invention of James Ballantyne Hannay for recovering gold from tailings by means of a cyanide solution, electric current and mercury bath. At the time of the formation of this company, the "Engineering and Mining Journal" did not deem it necessary to print anything about it, and you will not be surprised to hear that the thing has been a failure.

A few months ago the directors of La Yesca Gold and Silver Mines, Limited (formerly "Silver Mines of La Luz"), working mines at La Yesca, Tepic, Mexico, sent Mr. A. S. Pearse, the well-known English mining engineer, to report on their properties. He has just returned and reports that there are two lodes in the San Miguel mine, which he advises should be opened up to ascertain their real value. Surface workings prove that the former workers extracted a large quantity of ore from these lodes. In the Zapopan, at the time of his visit, in consequence of the wet season, the workings below the main tunnel were under water. Above the level of the tunnel the lode has been almost worked out of high grade ore. From the extreme power of the lode, and evidence of the extensive old works, together with the known value of ore extracted, it may be assumed that good ore will be found below the water level. The lower workings should at once be drained by means of hand pumps as being the most speedy and inexpensive, when there should be no difficulty in extracting sufficient ore to keep the mill going, and of a higher grade than can be expected from the old workings. Meanwhile arrangements for permanent drainage by means of a deeper tunnel and power pumps for next wet season should be provided. There is no doubt when the ore bodies below the present level are properly attacked that ore will be found of a grade which, when selected, will be of sufficient value to ship rather than mill—that is, ore of 200 oz. per ton and upward. Shipping is advisable in the case of high-grade ores. Zapopan ore also carries an additional gold value, which would be paid for when shipped, but would not be taken into account if sold locally. Assays show the gold contents in this mine as approximately 5 dwts. to a ton of 2,000 lbs., in addition to the silver. A trial crushing of 33 tons of low-grade ore was made, but, owing to the fact that the mill was not completed and the best mode of treatment not thoroughly ascertained, an extraction of 44% only was obtained. This may be expected to be increased in future crushings. Properly opened and equipped with the necessary plant, he believes that this mine can be made a steady and profitable producer. Mr. Pearse took bulk samples from the upper workings, which, he states, may be taken as fairly representative, the assay of which gave gold 0 26, silver 50 oz. per ton of 2,000 lbs. A selected sample from the bottom of the Roble shaft on San Miguel mine gave 12 dwts. gold and 30 oz. silver per ton of 2,000 lbs. Recent reports from Mr. Miller, the resident manager, state that he is extracting ore from the upper workings, and expected to have ore for a fortnight's crushing, commencing on July 29th. He has also opened up a new working in the Zapopan, the San Dimas, 4 ft. wide. Sample across face gave 36 oz. Will clean up to 50 oz. per ton, and yield large quantities.

A new company has been formed called the Mountain Mines, Limited, to work mines in Shasta County, Cal. No particulars of the venture are given, but the directors are all substantial men.

Recently I mentioned that a new company to work the Dolcoath tin mine in Cornwall had been registered. During the past week, its formation has been publicly announced and subscriptions for its stock have been solicited. The capital of the company is £350,000 in £1 shares. Of these, 188,000 shares are given to shareholders in the old company; 50,000 more are being subscribed for by the same; 50,000 are now being offered for public subscription, and 62,000 are held in reserve, the promoters having an option on them. As the new shares are already being dealt in at a premium the success of the flotation is fully assured.

The Gold Ore Treatment Company of Western Australia has been formed to acquire and work the patent rights of the Sulman-Teed bromo-cyanogen process in Western Australia. In the prospectus the directors do not commit themselves to a belief in the practicability of the process, but state that they base their statements on information supplied by the inventors. The fact is that the process has not yet been tried on a commercial scale, but that is nothing to prevent the present company being a success—to the promoters.

Paris. Aug. 11.

(From our Special Correspondent.)

While our Bourse continues active, there has been really little that is new to record during the past week. The greatest activity, outside of the gold stocks, has been in the shares of the copper companies, which are readily finding buyers at the advance.

In the gold stocks the most marked point is the favor which the new companies to operate in Mashonaland and Matabeleland are finding here. "It appears that this is the Ophir of the Bible," says a financial authority, and our people seem to agree with him.

The only French coins struck at the Paris Mint during the first six months of the year were 75,092,900 fr. in gold 20-fr. pieces, and 20,000 fr. in bronze minor coins. No silver was coined, although the government is empowered to coin 4,000,000 fr. of token money, in pieces of 2-fr. and under, to take the place of the small Italian silver returned to Italy. The Mint, however, executed orders for Tunis, Indo-China, Monaco, Morocco, Greece, Hayti, Bolivia, Chili and Guatemala, for a total sum of 16,680,652 fr. in coin of gold, silver, bronze or nickel.

The Fives-Lille Construction Company has addressed to the Chinese Government, through the French Minister at Pekin, a demand for the concession of a line from the frontier to Lang-Tcheo, in connection with the French system in Tonkin at Lang-Sou. The object is to open up trade between Tonkin and the Chinese southern provinces of Yunnan, Quei-Chow and Quang-Si. The frontier would be crossed at Dong-Dang, a distance of 30 miles from Lang Tcheo, which is the center of the trade of those provinces. Our government approves of the scheme, and made it the subject of an article in the recent treaty between France and China.

Politically everything is more quiet than for some weeks past. Truly a happy condition. AZOTE.

DIVIDENDS.

Silver King Mining Company, dividend of 25c. per share, $37,5000, payable September 7th at the office of the company, in Salt Lake City, Utah.

Centennial-Eureka Mining Company paid a dividend of $1 per share, $30,000. August 15th. at the office of the company, in Salt Lake City, Utah.

Mercur Gold Mining and Milling Company paid a dividend. No. 12, of 12½c. per share, $25,000, August 20th, at the office of the company, in Salt Lake City, Utah.

Utah Mining Company paid a dividend of 1c. per share, $1,000, August 12th.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dinq.	Sale.	Amt.
Belcher	Nev.	51	Aug. 20	Sept. 10	.25
Evening Star	Cal.	19	Sept. 10	" 27	.01
California	"	9	Aug. 31	" 21	.01
Con. Imperial	Nev.	33	Sept. 12	Oct. 3	.01
Bullion	"	5	" 5	" 7	.10
Gold Valley	Cal.	1	Aug. 5	Aug. 26	.07½
Gould & Curry	Nev.	76	" 7	Sept. 28	.15
Gray Eagle	Cal.	40	July 12	" 9	.05
Hale & Norcross	Nev.	107	" 3	" 25	.25
Kentuck Con	"	11	Sept. 10	Oct. 1	.10
Kimberly	S. D.	7	" 10	" 1	.002
Lucile	"	2	Aug. 17	Sept. 7	.20
Mono	Cal.	35	" 15	" 10	.10
New Tintic	Utah.	...	Sept. 10	" 30	.50
Ophir	Nev.	67	Aug. 13	" 2	.25
Osborn Hill	"	5	" 8	" 29	25
Potosi	"	44	" 27	" 4	.25
Reward	Cal.	10	" 27	" 13	.02
San Vicente	Mex.	4	" 7	Oct. 5	.12½
Sierra Nevada	Nev.	109	" 30	Sept. 23	.25
South Eureka	"	19	" 24	" 23	.40
Taylor, H. P.	"	...	May 31	" 26	.20
Union. Con.	"	51	July 22	" 15	.20
U. S. Grant	S. Dak.	6	Aug. 3	" 22	.001½
Utah Con	Nev.	21	" 12	Aug. 30	.05

DIVIDENDS PAID BY MINING COMPANIES JULY AND YEAR 1895.

NAME OF COMPANY.	Location.	Paid in July.	Paid in since Jan. 1.
Am. Dev. & Mg. Co.	Mont.	.....	$24,340
Alaska-Mexican	Alaska.	.....	25.500
Alaska-Treadwell	"	.....	150,000
Amethyst	Colo.	18,000	36,000
Bald Butte	Mont.	.....	12,500
Bangkok-Cora Belle	Colo.	$6,000	42,000
Belden, F. E. Mica	N. H.	4,000	50,000
Boston & Montana	Mont.	.....	300,000
Bullion-Beck & Champion	Utah.	100,000	275,000
Calumet & Hecla	Mich.	.....	500,000
Centennial-Eureka	Utah.	30,000	210,000
Champion	Cal.	3,400	23,800
Con. Cal & Va	Nev.	.....	162,000
Copper Queen Con.	Ariz.	.....	150,000
Coptis	Nev.	.....	1,000
De Lamar	Idaho.	100,000	344,000
Elkhorn	Mont.	.....	50,000
Elkton	Colo.	.....	7,500
Forepaugh	"	.....	16,000
Gold & Globe	"	.....	11.250
Golden Fleece	"	12,000	84,000
Hecla Con.	Mont.	15,000	105,000
Homestake	So. Dak.	31,250	218,750
Hope of St. Louis	Mont.	.....	10,000
Horn Silver	Utah.	.....	110.000
Iron Mountain	Mont.	10,000	80,000
Jackson	Cal.	.....	2,000
Kennedy	"	48,000	136,000
Mayflower Gravel	"	6,000	42,000
Mercur	Utah.	25,000	125,000
Mollie Gibson	Colo.	.....	50,000
Montana, Ltd.	Mont.	.....	82,500
Mont. Ore Purchasing Co.	"	.....	120.000
Morning Star Drift	Cal.	16,800	117,60 0
Moulton	Mont.	30,000	30,000
Mt. Rosa	Colo.	.....	5,000
Napa Con. (Quicksilver)	Cal.	.....	70,000
Nugget	Colo.	.....	5,000
Osceola Con.	Mich.	.....	100,000
Portland	Colo.	.....	120,000
Quincy	Mich.	.....	400,000
Silver King	Utah.	37,500	75,000
Smuggler	Colo.	50,000	350,000
Standard	Cal.	.....	30,000
Tamarack	Mich.	.....	200,000
Union	Colo.	.....	12,500
Utah	Utah.	1,000	10,000
Victor	Colo.	20,000	160,000
Victor L. & M. Co.	"	.....	6,000
War Eagle	B. C.	.....	82,500
W. Y. O. D.	Cal.	3,000	21,000
Total		$566,950	$5,324,740

Readers of the "Engineering and Mining Journal" will confer a favor on the publishers if they will notify the "Journal" of any errors or omissions in the above table.

STOCK QUOTATIONS.

NEW YORK.*

Name of Company.	Location.	Par val.	Aug. 17. H.	Aug. 17. L.	Aug. 19. H.	Aug. 19. L.	Aug. 20. H.	Aug. 20. L.	Aug. 21. H.	Aug. 21. L.	Aug. 22. H.	Aug. 22. L.	Aug. 23. H.	Aug. 23. L.	Sales
Amer. Flag	Colo.	1													
Best & Belcher	"	100									1.20		1.20		100
Bodie Con	Cal.	100													
Bost. & Mont.	Mont.	25													
Bullion	Nev.	100											.15		100
Bulwer	"	10													
Chollar	"	100													
Comstock scrip	"	100													
do. T. stock	"	100	.10		.09										1,100
Con. Imperial	"	50													
Con. Cal. & Va.	"	100	2.90				2.80				2.85		2.85		600
Daly	Utah	20													
Father de Smet	S. D.	100													
Excelsior			.82												100
Gould & Curry	Nev.	100													
Hale & Norcross	"	100					1.75								200
Homestake	S.Dak.	100													
Horn Silver	Utah	25													
Iron Silver	Colo.	100													
King & Pemb.		10													
Lacrosse	Colo.	10			.20	.19					.19		.19		5,700
Leadville	"	10	.14	.13							.15		.13		1,100
Little Chief	"	50									.15		.15		1,070
Mexican	Nev.	100	.75				.75	.73					.70		800
Ontario	Utah	100	9.00												25
Ophir	Nev.	100									1.60		1.60		400
Phoenix of Ariz	Ariz	100													
Potosi	Nev.	100	.70												500
Savage	"	100					.75								200
Small Hopes	Colo	100													
Standard Con	Cal	20													
Tamarack	Mich.	100													
Union Con	Nev.	25													
Victor	Colo.	100													
Yellow Jacket	Nev.	5	.40				.50						.41		600

* Official quotations N. Y. and Con. Stock and Petroleum Exchanges. Total shares sold, 12,625.

BOSTON, MASS.*

Name of Company.	Location.	Par val.	Aug. 16. H.	Aug. 16. L.	Aug. 17. H.	Aug. 17. L.	Aug. 19. H.	Aug. 19. L.	Aug. 20. H.	Aug. 20. L.	Aug. 21. H.	Aug. 21. L.	Aug. 22. H.	Aug. 22. L.	Sales.
Allouez	Mich.	25	1.50				1.25				1.25	1.00	1.25		515
Arnold	"	25	3.50	2.75	3.00	2.75	3.00		3.00	2.75	2.63	2.50	2.75		2,595
Atlantic	"	25	23.75	22.00	23.00		23.00	21.50	23.00	22.75	24.00	23.25	24.00		2,235
Bonanza		10	.55	.50	.50										2,460
Bost. & Mont.	Mont.	25	90.00	86.0	91.00	89.75	89.25	86.50	88.00	85.50	88.50	86.00	90.00	86.50	40,916
Butte & Bost.	Mont	25	22.50	21.00	23.00		22.00	21.00	21.75	20.50	21.50	20.75	22.00	20.50	7,932
Cal. & Hecla	Mich.	25					310		310		310		310		31
Catalpa	Colo.		.12½						.12½		.12½		.12½		4,200
Centennial	Mich.	100	2.06	1.88	2.38	2.00	2.00	1.75			2.00				3,010
Copper Falls	"	25	9.75												20
Dominion Coal	N. S.	100	16.38	16.25	16.13		16.00		16.00				16.25	16.00	635
do. pref.	"	25	99.0												10
Franklin	Mich.	25	21.50		21.00		20.00	19.75	20.00		20.0				480
Kearsarge	"	25	20.25	19.88	20.25	20.00	19.75	19.00	19.75	19.00	19.75	18.50	20.00		2,565
Merced	Cal														
Napa	"								8.00		8.0		8.00		350
Osceola	Mich.	25	38.00	36.00	38.00	37.50	37.00		36.00	35.00	36.00	35.25	33.00		3,389
Quincy	"	25	149	148	149				146		148	146	146		152
do. scrip	"		80.75	80.50	81.50	80.00	81.00	80.50	80.50		80.50				770
Santa Ysabel	Cal.	5							14.00						100
Tamarack	Mich.	25	164		165		164		161	160	160		160	158	224
Tamarack, Jr.	"	25					24.00		23.00	22.00	23.00		23.50	23.00	600
Tamarack, scrip	"														
Tecumseh	"		3.94				3.75	3.25							220
Wolverine	"	25	8.00		8.25	8.00	8.00		8.00	7.50	8.38	8.00	8.75	8.2	2,506

* Official quotations Boston Stock Exchange. Total shares sold, 75,094.

COLORADO SPRINGS MINING STOCKS.*

Name of Company.‡	Par val	July 29. H.	July 29. L.	July 30. H.	July 30. L.	July 31. H	July 31. L.	Aug. 1. H.	Aug. 1. L.	Aug. .. H.	Aug. .. L.	Aug. 3. H.	Aug. 3. L.	Sales.
Alamo	$1					.03⅞				.03¾	.03⅝	.04		49,600
Anaconda	5			.40		.40		.41		.40		.40		6,677
Argentum J	2	.90	.89	.88	.87	.92	.90	.88¼	.88	.88½	.87	.88	.87	1 ,056
Bob Lee	1					.005		.0055		.006		.0055		24,000
Cripple C.	1	.06⅞	.06¼	.07½	.07	.08⅛	.07⅛	.08	.07⅛	.07¼	.07¾	.07½	.07¼	83,950
C. O. D	1	.04												1,000
Cr. & C. C.	1			.02½				.02⅛	.02					13,600
Fanny R	1	.05⅛		.06⅛		.10								6,250
Franklin	1							.0065						2,000
Gold & Gl.	1											.10		8,000
Isabella	1	.18½	.18¼	.18⅛	.18	.21	.20			.20½		.20½		13,100
Mollie G	5					.85				.85½	.84¾	.84		1,700
Mt. Rosa	1	.06⅛	.06	.06		.06⅛		.06¼	.06	.06½	.06	.06½		89,600
Pharmacist	1			.05	.04⅞	.05		.05⅛						21,500
Portland	1	1.08	1.03¼	1.12½	1.07½	1.10	1.09			1.11		1.12½	1.12	20,750
Specimen	1	.07½				.10	.09½	.10						48,900
Summit	1							.07¼						3,700
Union	1	.27	.25	.26¼	.24	.26½	.25	.25	.22¾	.25	.24½	.25½	.24½	110,500
Work	1	.03⅛	.03⅛							.04		.04½		25,000

* Official quotations Colorado Springs Mining Stock Association ‡ All the companies are located in Colorado. Total sales, listed, 546,574; unlisted, 765,668.

COLORADO SPRINGS, COLO.*

Name of Company.†	Par val	Aug. 12. B.	Aug. 12. A.	Aug. 13. B.	Aug. 13. A.	Aug. 14. B	Aug. 14. A	Aug. 15. B.	Aug. 15. A.	Aug. 16. B.	Aug. 16. A.	Aug. 17. B.	Aug. 17. A.	Sales.
Aola	..	.0085	.01	.0085		.008	.01	.009	.01	.009		.009	.01	7,350
Anaconda	$5	.42½	.44	.51	.52	.47	.49	.49¼	.50	.49½	.50	.48	.49½	13,902
Anchoria-L	1		.41			.45		.47						
Argentum J	2	.80		.77	.82	.79½	.82	.72	.73	.70	.74	.68	.74	2,700
Bob Lee	1	.007	.008	.0085	.0095	.009	.00925	.00875	.009	.0085	.0095	.0075	.009	62,000
Ben Hur	1	.04	.04⅝	.04½	.04¾	.04	.04½	.04⅜		.04¼	.04½	.04⅜	.04⅝	11,700
Blue Bell	1	.03½	.04½	.04	.05	.03½	.04½	.04	.05	.04¼		.04	.04¼	4,000
Buckhorn	1	.03⅜			.03⅝	.03¼	.03⅝	.03⅛	.03¾	.03¼	.03⅜	.03	.03½	3,500
Consolid'd.	1	.09½	.09⅝	.10	.10½	.10⅛	.10½	.12⅞	.13	.13¾	.14	.12¼		199,100
Cr. & C. C.	1	.02¼	.02½	.03	.03¼	.03¼	.03½	.03	.03¼		.03⅛	.02¾	.03	79,450
Colo.C.& M.	1	.01½		.01⅞	.02	.02	.02⅛	.02⅛	.02½	.02⅛	.02¼	.02⅛	.02½	143,500
Columbine.	1	.01⅝	.02¼	.01¾	.02	.01⅝	.01⅞	.01⅞	.02	.01¾	.02	.01¾	.02⅛	8,000
Copper M	..	.01¾		.01⅝		.01⅝	.01¾	.01⅝	.01¾			.01½	.02	84,500
Enterprise.	1	.07	.07½	.07	.07¼	.08	.07¼	.08¼	.08½	.09⅝	.09¾	.09½	.10	29,000
Eureka	....	.006	.009	.007	.009	.007	.009	.009		.0085	.0095	.009	.01	59,000
Fanny R.	....	.005	.00725	.006	.0065	.005	.0055	.0055	.007	.0075	.008	.0075	.008	45,030
Gold King.	....	.30		.35	.40	.35	.40	.36	.40	.35	.39		.38	1,700
Gold Eagle	1	.01	.01⅛	.01⅛	.01¼	.01	.01⅛	.01	.01⅛	.01⅛	.01¼	.01⅛	.01¼	29,000
Gold & Gl.	1	.10⅝		.12½	.15	.11¼	.13	.11½		.13	.13½	.13	.13⅛	5,000
Gould	1	.04½	.04⅝	.05	.05¼	.05	.05¼	.05⅝	.05¾	.05⅛	.05½	.04¾	.05	103,300
Gold Stand	....	.02⅞		.02¾						.02¾				
Goldstone.	1	.007	.008	.0072	.008	.0075	.008	.0075	.0085	.007	.009	.0075	.0085	20,000
Golden Age	1	.0085	.009	.0085	.00875	.00875	.009	.0085	.009	.0085	.0095	.0085	.009	33,000
Gran. Hill	1	.01¼	.01½	.01½	.01⅝	.01⅜	.01⅝	.01¾	.01¾	.01¾	.01⅞	.01⅞	.02	29,800
Jack Pot	....	.02⅞		.03⅝	.03⅞	.03⅝	.03⅞	.03½	.03¾	.03⅞	.04⅛	.04¼	.04½	158,000
Keystone.	1	.02	.02¼	.02⅛	.02¼	.02		.02		.02	.02⅛	.02	.02⅛	21,000
Magna Ch.	1	.02⅜	.02¼	.02⅛	.02⅛	.02½	.02⅝	.02⅜	.02½	.02⅜	.02½	.02⅜	.02½	37,000
Mollie G.	5	.68	.71½	.68	.71½			.61	.70	.60	.68	.60		1,000
Mt. Rosa	1	.07	.07⅛	.08⅛	.08½	.08⅛	.08¾	.08⅜	.08½	.08½	.08¾	.08⅝	.08¾	45,000
Mutual	1	.07		.07⅜	.08	.07½		.07⅝	.08	.07⅝	.08	.07⅝	.08	20,650
Nugget.	1	.10	.19¼	.09⅞	.10¼	.09⅞	.10	.09¾	.10	.09⅞	.10	.10⅛	.10½	6,308
Ophir.	1			.06	.06½	.06	.06½	.05½	.06¼			.05⅞	.06½	8,000
Orphan Bell	1	.06	.07	.06		.06½	.07	.06½	.07½	.07⅛	.07½	.06⅞	.07⅛	7,600
Pharmacist	1	.04⅝			.04¾	.04½	.04¾	.04⅞	.05	.04¾	.05	.04¾	.05	22,200
Portland.	1	1.95	2.25	1.67	1.79	1.84	1.90	1.65	1.75	1.71	1.75	1.7	1.74	37,100
Silv. State	1	.01¼				.01⅛		.01⅛	.01⅛	.01		.01		
Temonj	....	.04¼	.04⅝	.04⅝	.04⅝	.04	.04½	.04	.04½	.04½	.04½	.04¼	.04½	
Summit	1	.08	.08¾	.08¾	.09	.09		.09⅛		.10	.10⅛	.10⅛		32,200
Santa Fe	....	.0065	.008	.005	.0075	.006	.0075	.006	.008	.00575	.0075	.006	.007	
Star of W.	1	.007	.0085	.0075	.00825	.0075	.0085	.0075	.008	.0075	.0085	.007	.009	43,000
Union	1	.24¾	.24⅞	.25⅜	.25½	.25⅝	.25¾	.26	.27	.26⅝	.27	.27⅝	.28	76,500
Union Leas.	1	.58¼	.6	.57½						.50½	.55			
Virginia M.	1	.01⅝	.01½	.01½	.01¾	.01½	.01¾	.01⅞	.02	.02	.02⅛	.02	.02¼	115,575
World	1	.01¾		.01⅞		.01½		.02⅛	.02½	.01¾			.02¼	0,000
Work	1	.04⅜	.05	.05	.05¼	.05⅛	.05½	.05¾		.05⅝	.06⅞	.05	.06½	23,000

* Official quotations Colorado Springs Board of Trade and Mining Exchange. † All the companies are located in Colorado. Total shares sold, listed, 1,634,137; miscellaneous, 361,498.

COAL AND COAL RAILROAD STOCKS.*

Name of Company.	Par value.	Aug. 17. H.	Aug. 17. L.	Aug. 19. H.	Aug. 19. L.	Aug. 20. H.	Aug. 20. L.	Aug. 21. H.	Aug. 21. L.	Aug. 22. H	Aug. 22. L.	Aug. 23. H.	Aug. 23. L.	Sales
Balt. & Ohio	100									64⅝		64½	64	500
Ches. & Ohio	100			21¼		21⅛	21	21⅛		21⅛	20	21	20⅝	6,913
Col.C. & I.Dev	100	7				8	7							600
Col. Fuel & I.	100			36¼		36¼	36	37	36½	37¾	36¾			3,587
do. pref	100													
Col.,H.V.&Tol	100					25¾	24⅝	25⅛		25	24½	25	24¾	700
Col. & H.Coal	100			4						4				300
Consol. Coal	100													
Del. & Hud.C	100	131		130⅞		131¼	130⅞	131½	131⅛					1,720
Del., L. & W.	50			163⅝	163⅛	164	163⅞	162½						1,050
Lake Erie&W	100			24⅛	23	25	24½	26	25	27¾	26½	27½	27	12,635
do. pref	100	78¾	78½	77⅛	76½	76¾	75	77⅜	76	82	78½	82	81	16,950
Morris & Es'x	100													
N. J. Central	100			104¾		108	106¼	107½	106	105¾				3,014
N. Y.,L.E.&W	100	8⅛	8¼	8⅛		8⅝		8⅝		8½	8	8⅜	8⅛	2,085
do. pref.	100													
N.Y.,Susq.&W	100	12¼		12⅛		13⅜	12⅞	13⅛	12¾	13⅛	13	13⅛	13	4,870
do. pref.	100	30¼		30½		32½	30½	33⅛	32	32½	32¼	32¼		7,392
Norfolk & W.	50													
do. pref.	50			14¼										200
Phila. & Read.	50	18⅝	18½	18⅞	18½	19⅛	18¾	19⅛	18¼	18⅝	18½	18¾	18½	34,125
Tenn. C. & I.	100	35¼	35	35¼	34⅛	35¼	35	36	35⅛	35⅝	35⅛	35⅞	35¼	6,325
do. pref	100													
Wheel. & L. E	100	16⅝	16¼	16⅞	16¼	16¾	16	16½	16	16¾	16	16¾	16¼	25,863
do. pref	100	52¼		51⅜		51½		52¼	50½			50½		1,035

* Official quotations N. Y. Stock Exchange. Total shares sold, 129,924.

INDUSTRIAL AND TRUST STOCKS.*

Name of Company.	Par value.	Aug. 17. H.	Aug. 17. L.	Aug. 19. H.	Aug. 19. L.	Aug. 20. H.	Aug. 20. L.	Aug. 21. H.	Aug. 21. L.	Aug. 22. H.	Aug. 22. L.	Aug. 23. H.	Aug. 23. L.	Sales
Adams' Exp	100													
Am. Cot.Oil.	100					25⅝		26		25⅞	24⅞			918
do. pref	100			74	73½	74		73⅜		74				330
Am. Exp	100	114		113¾						114⅞				53
Am. Sug. Rf.	100	114¼	113¾	114⅛	111⅝	112⅛	110	112	108⅞	110⅛	106¾	110¼	108⅞	315736
do. pref	100			103⅜	102½	103	102½	102½	102	102	101¼			953
Edison E. Ill	100			99¾						99				260
General Elec	100	36⅝		37½	36⅝	37⅛	36¾	37⅛	36½	37	36⅜	36½		8,661
Nat Lead.	100	35¾		35¾	35½	36⅝	35⅝	36½	35¾	35⅝	34½	35	34⅜	8,873
do. pref	100	93½				94⅛	93⅝	93⅝		93¼	91	91⅜	91¼	2,923
Nat.Lins.Oil.	100	30		30½	30	31	30½	31¾		29⅞	28½	29½		2,188
U.S.Cordage	100			1⅜										636
do. pref	100			2⅜						3⅛				500
do. gtd.	100	6¼		7										262
U.S. Express	100							43¼	43					30
U. S. Rubber	100	40¼		40	39½	40	39¾	40⅜	40	41⅝	40	40⅝		4,590
do. pref.	100			94½	94¼					94⅛				351
Wells Fargo.	100							110¼		112				20
West. Union	100	93⅝		94⅛	93⅝	94⅛	93⅞	94⅛	93⅝	93⅞	93¾	93⅞	93⅝	13,626

* Official quotations N. Y. Stock Exchange. Total shares sold, 460,913.

HELENA, MONT.* Week ending Aug. 10.

Name of Company.	Location	Company's office	Par value.	Bid.	Asked	Shares sold.	Price	Date.
Am.Dev.&M.Co.	Silv.Bow Co, Mont.	Butte, Mont.	$1	$2.00	$2.50			
Bald Butte	L.& Cl'ke Co., "	Helena "	1	3.50	4.00			
Benton Group	Meagher Co. "	W.Sph. S.Mont	5	.10	.15			
Combination	" " "	" " "	10	.60	.65			
Elkhorn	Jefferson Co. "	London, Eng.	£1	6s. 6d.	7s. 6d.			
Hel'a & Frisco	Shoshone Co., Id.	" "	5	2.00	2.50			
Iron Mountain	Missoula Co., Mont.	" "	10	.72½	.75	2,500	72½-75	Ju. 12-16
Ontario	DeerLodgeCo. "	" "	1	1.00	1.20	500	1.00	July 13
Piegan	L. & C. Co., "	Marysville, "	5	.15	.25	5,000	.15	July.
Royal Gold	D'r LodgeCo., Mont	D'r Lodge, "	5	.40	60			

* Special report of Samuel K. Davis. Total shares sold, 8,000.

ASPEN, COLO.* Week ending Aug. 9

Name of Company.	Location.		Par value.	Bid.	Asked	Shrs. s'ld	Price.
Alta Argent	Aspen,	Colo.	$1.00	$0.07¾	$0.08	13,000	$0.08
Argentum-Juniata	"	"	2.00	.79	.80	2,500	.80
Aspen Contact	"	"	5.00	.25	.26		
Aspen Deep Mining	"	"	1.00	.09	.10	18,000	.10
Best Friend	"	"	1.00	.04	.04¼	800	.04¼
Bi-Metallic	"	"	1.00	.02	.02⅛	630	.02⅛
Bushwhacker	"	"	1.00	.05½	.05¾	4,500	.05¾
Caverhill Consolidated	"	"	1.00	.20	.20	8,500	.20
Della S.	"	"	5.00	.70	.72½	3,000	.72½
Gold Valley Placer	Routt Co.,	"	1.00				
Mineral Farm Consolidated	Aspen,	"	1.00	.08	.08½	11,700	.08½
Mollie Gibson	"	"	5.00	.75	.77	1,000	.77
Old Colony Gold	Taylor River,	"	1.00	2.00	2.00	8,000	2.00
Sheep Mt. T. & M	Crystal,	"	1.00				
Smuggler	Aspen.	"	1.00	1.40	1.45	600	1.45

* Special report of Arkell, MacMillan & Stewart. Total shares sold, 71,530.

DENVER, COLO.* Week ending Aug. 19.

Name of Company.	Location.		Par value.	Opening	Highest.	Lowest.	Closing. Bid.	Closing. Ask.	Sales.
Alamo	Cripple Creek,	Colo.		.02⅛	.03½	.03¼	.03½	.04½	34,700
Amity	Leadville,	"	$1	.00¼	.08	.04½	.04½	.10	84,000
Anaconda	Cripple Creek,	"	5	.39¼	.52	.39¾	.48½	.51	13,757
Aola	" "	"		.00⅛	.08½	.06½	.08¼	.09½	28,000
Argentum J	Aspen,	"	1	.75½	.76	.70	.70	.80	12,500
Auic C				.005¼	.008	.005¼	.005	.007	57,000
Bangkok Cora Bell	Leadville,	"	1	.13¼	.14¾	.13½	.14½	.14¾	29,200
Big Six	"	"	1	.07	.08½	.07¾	.07¾	.08½	17,100
Boston-Idaho				.23	.25	.24	.24½	.27½	1,500
Cripple Creek Con	Cripple Creek,	Colo.	1	.07½	.14½	.11½	.11½	.12½	50,000
Creed & Cripple Creek	" "	"	1	.02	.03½	.03	.03	.03⅜	46,100
Forepaugh	Leadville,	"	1	.25	.60	.40	.40	.60	500
Gold Standard	" "	"	1	.02¼	.04	.02¾	.03½	.04⅛	57,200
Gold & Globe	Cripple Creek	"		.09	.13	.10	.10	.11½	29,100
Garfield Grouse				.01¼	.02	.01¼	.01⅝	.01½	2,000
Isabella	" "	"	1	.18½	.22	.20	.21	.22	7,885
Justice				.04¼	.06½	.05⅝	.06½	.07	1,000
Mollie Gibson	Aspen,	"	5	.73	.72	.61	.60	.68	9,700
Mt. Rosa	Cripple Creek,	"	1	.06¼	.09	.07	.08½	.09	20,000
Pharmacist	" "	"	1	.03	.05	.04½	.05	.06	9,000
Portland	" "	"	1	1.60	2.05	1.68	1.68	1.70	1,600
Smuggler	" "	"	1	1.25	1.40	1.25	1.25	1.40	
Union Gold	Aspen	"	1	.22	.27	.22	.26¾	.27	8,000
Union Leasing	Leadville,	"	1	.55	.62	.45	.44	.48	37,400
Work	Cripple Creek,	"	1	.04¾	.06	.05½	.05½	.06	11,000

*Clearing House Report, Colorado Mining Stock Exchange. Total listed, 568,332; unlisted, 275,000.

ST. LOUIS, MO., STOCKS.

Name of Company.	Location of Works.	Company's Office.	Par value.	Bid.	Asked.	Last Dividend.
Central Lead Co	Flat River, Mo.		100	50	60	
Cons. Coal Co		St. Louis	100	20	22	June, '95, 1 p. c.
Doe Run Lead Co	Doe Run, Mo.	St. Louis	100	80	100	June, '92, 2 "
Kan. & Tex. Coal.			100	64	66	
St. Joseph Lead Co	Bonne Terre, Mo.	New York	$10	$9	$.0	July, '95 1½ p. c.

PITTSBURG, PA.* Aug. 22.

Name of Co.	Par	Sale.	Bid.	Ask.
Gas Stocks:				
Allegheny	$100		$48½	$50
Chartiers Valley.	100		7⅞	9
Ohio Valley	50			
People's Nat. Gas	50		30	
People's Nat. Gas and Pipeage	25	13	11⅞	13¼
Pennsylvania	50		5	
Philadelphia.	50	17¾	17	17½
Mining Stocks:				
Lustre	10	12	10	12

*Official quotations Pittsburg Exchange.

DULUTH, MINN.* Aug. 17.

Name of Co.	Par	Price	Bid.	Asked
Adams Iron	$10		$4.00	$5.00
Biwabik I. M.	100	$20.00	20.50	21.00
Clev. Cliffs Iron.	100		35.00	37.00
Great No. M.	100		1.75	2.00
Great West. M.	100		1.00	1.50
L. Sup. Con. M.	100	15.50	16.00	17.50
L. Sup. (Marq'te)	25		25.00	
Minnesota Iron.	100	66.00	67.50	70.00
Mes. Chief Iron.	100		2.00	2.25
Mountain Iron	100	50.00	55.00	56.50
Ohio Mining	100	4.00	4.00	5.00

* Official quotations Duluth Exchange.

LONDON. Aug. 3.

Name of Company.	Par value.	Quotations. Buyers	Sellers
AMERICANS:		£ s. d.	£ s. d.
Alaska-Mexican	£1	1 10 0	1 15 0
Alaska Treadwell	5	4 15 0	5 0 0
De Lamar	1	1 1 3	1 2 6
Elkhorn	1	6 6	7 6
Harquahala	1	3 9	4 3
Holcomb Valley	5s.	1 9	2 3
Jay Hawk	£1	1 0	2 0
Montana	1	11 3	12 6
New Guston	1	12 6	15 0
Palmarejo (Mex.)	1	3 0	3 6
Plumas-Eureka	2	10 0	12 6
Poorman	5s.	2 9	3 3
Richmond	£5	12 6	17 6
Sierra Buttes	2	8 9	11 3
Springdale	4s.	2 3	2 6
SOUTH AMERICANS:			
Colombian Hydraulic	£1	11 3	13 9
Frontino & Bolivia	1	1 3 9	1 6 3
Tolima, A shares	5	7 10 0	8 0 0
" B "	5	6 10 0	7 0 0
COPPER STOCKS:			
Cape Copper	2	2 5 0	2 15 0
" preferred	2	2 0 0	2 5 0
Copiapo	2	2 2 6	2 7 6

Name of Company.	Par value.	Quotations. Buyers	Sellers
COPPER STOCKS:		£ s. d.	£ s. d.
Rio Tinto	£10	16 10 0	16 12 6
Tharsis	2	4 15 0	4 17 6
AUSTRALIANS:			
Bayley's Reward	1	8 0	9 0
Broken Hill Propriet'ry	8s.	1 12 6	1 15 0
Mt. Morgan Gold	17s. 6d.	2 10 0	2 12 6
INDIANS:			
Champion Reef	£1	4 13 9	4 16 3
Mysore	1	2 12 6	2 15 0
Nundydroog	1	1 17 6	2 0 0
Ooregum	1	3 5 0	3 7 6
" preferred	1	3 18 9	4 1 3
SOUTH AFRICANS:			
British S. Africa Co	1	5 12 6	5 17 6
City & Suburban	4	27 0 0	27 5 0
Crown Reef	1	10 5 0	10 10 0
De BeersCon.(diam'nd)	5	24 5 0	24 7 6
Durban-Roodepoort	1	8 2 6	8 5 0
Ferreira	1	16 5 0	17 5 0
Geldenhuis Estate	1	6 12 6	6 17 6
Jagersfontein (diam'd)	5	8 18 9	9 1 3
Lang'laagte Estate	1	8 9	8 12 6
New Primrose	1	7 0 0	7 2 6
Robinson	5	9 16 3	9 18 9
Simmer & Jack	1	16 17 6	17 2 6

MEXICO. Week ending Aug. 17.

Name of Company.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Closing.
Amistad y Concordia	Hidalgo	9,600	$3.58		$40	$60
Angustias	Guanajuato	2,400	15.00		1,170	1,200
Asturiana y Anexas	Zacatecas	2,500	10.00		4 0	380
Cerro Colorado	Chihuahua	15,000		$1.00	15	15
Cinco Senores	Guanajuato	2,000	30.00		1,540	1,540
Concepcion y Anexas	S. Luis Potosi	2,700			300	325
El Oro	Guanajuato	800			80	80
do. pref	"	2,000	2.00		80	80
Huautla Sta. Ana	Morelos	4,000	1.50		100	100
Luz de Berda	Michoacan	3,000		0.50	30	30
do. Free stock	"	1,000			40	30
Luz de Maravillas	Hidalgo	1,100			400	410
Purisima de los Com.	Zacatecas	2,400			70	70
Real del Monte	Hidalgo	2,554	20.00		1,300	1,300
Rosario y Anexas	Durango	4,800			120	120
do. pref	"	2,400			80	90
San Rafael y An	Hidalgo	1,200	32.00		1,625	1,780
do. free stock	"	1,200	20.00		900	900
Sta. Elena Almoloya	"	1,280		0.50	11	10
Sta. Gertr. y Anexas	"	28,800	1.50		78	74
do. free stock	"	9,600	0.87		16	16
Sta. Maria de la Paz	S. Luis Potosi	2,400			320	324
Tlauzingo	Puebla	2,400			40	40
Zaragoza	Hidalgo	1,100			40	30
Zomelahuacan (gold)	Vera Cruz	5,000			100	100
Zona Min. de Pozos	Guanajuato	2,400		1.50	120	110

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

Philadelphia, Pa.* Aug. 21.

Name of Co.	Par.	High.	Low.	Sales.
Cambria Iron	$50	$62½		5
do. Allots				
Hunt & Br. Top	50			
do. pref	50	51¼		25
Lehigh C. & N.	50	46¼		9
Lehigh Valley	50	38⅜	$38⅛	256
Penn. R. R.	50	54¼	54	83
Westmorel'd C.	50	54¼		6

*Phila. Exchange. Total shares sold, 384.

Shanghai, China.* July 26.

Name of Co.	Par.	Last div.	Price.
Jelebu Mg	$5	$0.25	T. 2·41
Punjom Mg	4		" 4·02
do. pref.	1		" 1 24
Raub A'lianG.	£1	10½d.	" 3·10
Sheridan Con.	T. 100		" 4·00

* Special Report of J. P. Bissett & Co. Prices quoted are in silver taels.

PARIS. Week ending Aug. 9.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Closing.
			Francs.	Fr.	Fr	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	100.00	1,925.00	1,955.00
" " Firminy	"	" "	4,000,000	500	85.00	1,526.00	1,526.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	630.00	630.00
" " la Marine	"	" "	20,000,000	500	30.00	777.50	780.00
" " Longwy	"	" "		500	35.00	670.00	670.00
" " l'Horme	"	" "		500		16.00	16.00
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	40.00	345.00	325.00
Anzin	France	Coal			200.00	4,070.00	4,035.00
Boleo	Lower Cal.	Copper		500		1,0 5.00	1,080.00
Bruay	France	Coal	30,000,000	400	600.00	15,500.00	16,000.00
Callao	Venezuela	Gold	32,200,000	125		15.00	14.75
Cape Copper	S. Africa	Copper		50	1.50	53.12	59.68
Champ d'Or	"	Gold		25		99.00	98.75
Courrieres	France	Coal	60,000,000	300	150.00	4,135.00	4,150.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	598.37	626.25
Dombrowa	Russia	Coal		500		585.00	585.00
Dourges	France	"		1,000	225.00	6,500.00	6,500.00
Dynamite Centrale	"	Explosives		500	25.00	587.50	595.00
Dynamite Francaise	"	"		500	25.00	740.00	740.00
Epinac	"	Coal		2 500		600.00	600.00
Huanchaca	Bolivia	Silver		125	5.00	162.50	161.25
Jerez-Lanteira	Spain	Copper				6.50	6.50
Kebao	Tonquin	Coal		500		500.00	500.00
Laurium	Greece	Zinc & lead	16,300,000	500	40.00	558.00	556.00
Malfidano	Italy	Zinc	12,500,000	500	52.50	919.00	910.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	37.50	272.50	299.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	780.00	790.00
Nickel	N.Caled'nia	Nickel	12,720,000	500	30.00	171.00	170.00
Penarroya	Spain	Coal, etc.		500	52.50	1,020.00	1,025.00
Pontgibaud	France	Lead, etc.				292.50	290.00
Rio Tinto	Spain	Copper	81,250,000	250	8.00	415.50	441.25
Robinson	S. Africa	Gold		125	12.50	246.00	252.50
Saint Elie	Fr. Guiana	"	4,000,000	25		38.00	37.50
Salines de l'Est	France	Salt		500	27.00	275.00	276.25
Soufres Roumaines	Italy	Sulphur				215.00	217.50
Tharsis	Spain	Copper		50	6.25	116.00	123.00
Vicogne-Noeux	France	Coal				700.00	17,035.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	30.00	465.50	467.00

VALPARAISO, CHILE.* Week ending June 22.

Name of Company.	Capital.	Share value. N'minal.	Paid up.	Last dividend.	Prices. Bid.	Asked.	Last sale
Arturo [illegible]	$3,300,000	$100	$100	0½ per cent.	$44	44½	$44
Caracoles	315,000	100	100	5 "		50	
Descub. de Huantajaya	1,000,000	100	100	2 "	34	36	35
Huanchaca de Bolivia	8,000,000	100	100	4 "	95	96	95
Oruro	800,000	1,000	1,000		2,800	2,810	2,800
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.	50	55	52½
Todos Santos	2,000,000	100	100	0½ "	18	18½	18
Nitrate Cos:							
Agua Santa	5,000,000	500	500	6 "	156	159	160
Antofogasta	2,000,000	200	200	10 "	195	197	197
Union	3,000,000	200	100	3 "	92	93	92½

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SALT LAKE CITY, UTAH.* Week ending Aug. 17.

Name of Company.†	Par value.	Bid.	Asked.	Actual selling price.	Name of Company.	Par value.	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.30	$0.40	$0.35	Daly	$20	$6.25	$7.00	$6.75
Alliance	1	1.35	1.50	1.50	Daly West	20	6.25	6.75	6.50
Amer. Nat. Gas	10	.15	.90	.20	Horn Silver	25	2.10	2.50	2.25
Anchor	20	3.00	3.35	3.25	Mammoth	25	.95	1.10	1.05
Bogan	1	.15	.40	.25	Mercur	25	4.10	4.25	4.25
Bullion Beck & C.	10	7.00	8.75	8.50	Morgan	125	.50	.75	.65
Cane Springs	5	.50	.85		Ontario	100	8.75	9.75	9.75
Centen'l Eureka	50	54.00	62.00	60.00	Silver King	20	14.25	15.00	14.75
Cleveland Con.	1		.50		Tetro	1		.25	.10
Comstock	25	.50	.80	.75	Utah	1	.50	1.00	.75
Dalton	5	.02	.05	.03	Utah Lime	10	3.50	4.25	4.00

Special report of James A. Pollock. † All the companies are located in Utah.

CURRENT PRICES.

These quotations are for wholesale lots in New York unless otherwise specified.

Acid—Acetic, chem. pure .18@.20
Commercial, in bbls. and obys .01¾@.02
Carbonic, liquefied, ℔ lb .07@.10
Chromic .20
Hydrofluoric .04@.07
Alcohol—95%, ℔ gall .$2.30@$2.40
Absolute .$3.80
Alum—Lump, ℔ cwt .$1.60@$1.80
Ground, ℔ cwt .$1.70@$1.90
Lump ℔ ton, Liverpool .£4 10s.@£4 17s.
Aluminum Chloride—Pure, ℔ lb. $1.25
Amalgamating solution, ℔ lb .60
Sulphate, ℔ cwt .$1.25@$1.75
Ammonia—Sal., lump, ℔ lb .09@.10
Carbonate, ℔ lb., English and German .08½@.09½
Muriate, white, in bbls., ℔ lb .07@.08
Aqua Ammonia—(in cbys) 8° ℔ lb .03@.04
20°, ℔ lb .04@.05
26°, ℔ lb .04¾@.05
Antimony—Oxymur, ℔ lb .04@.06
Regulus, ℔ lb .07@.08
Oxide .18@.25
Argols—Red, powdered, ℔ lb .15
Arsenic—White, powdered ℔ lb .03@.03¾
Red ℔ lb .06½@.06
Yellow .08@.09
White at Plymouth, ℔ ton .£12 2 6
Asbestos—Canadian, ℔ ton .$15@$120
Italian, ℔ ton, c. i. f. L'pool .£18@£60
Ashes—Pot, 1st sorts, ℔ lb .04½@.04⅝
Pearl .05½@.06
Asphaltum—
Prime Cuban, ℔ lb .04@.05
Hard Cuban, ℔ ton .$28.00@$30.00
Trinidad, refined, ℔ ton .$30.00@$35.00
Egyptian and Syrian, ℔ lb .05@.07½
Californian, at mine, ℔ ton $12.00@$26.00
at San Francisco, ℔ ton, $15.00@$29.00
Barium—Carbonate, pure precip., ℔ lb .10
Carbonate, commercial, ℔ lb .03
Chlorate, crystal, ℔ lb .25@ 30
Chloride, commercial, ℔ lb .02@.02½
Iodide, ℔ oz .40
Nitrate, ℔ lb .06¼@.07
Sulph., Am. prime white, ℔ ton .$15@$18
Sulph., foreign, floated, ℔ ton .$16@$18
Sulph., off color, ℔ ton .$10@$11.50
Carb., lump, f. o. b. L'pool, ℔ ton .£6
Bauxite—℔ ton .$7 @ $8
Bichromate of Potash—Scotch, ℔ lb .09@.10
American, ℔ lb .09@.09½
Bichromate of Soda—℔ lb .08@.09
Borax—Refined, ℔ lb., in car lots .06@.06½
Bromine—℔ lb .25@ 35
Cadmium Minion—℔ lb .$2.00
Cadmium Iodide—℔ lb .$5.00
Chalk—℔ ton .$1.50@$2.25
Precipitated, ℔ lb .04@.05
China Clay—English, ℔ ton .$12@$17.00
Domestic, ℔ ton .$9@$11
Chlorine liquefied, ℔ .25
Chrome Yellow—℔ lb .10@.25
Chrome Iron Ore—℔ ton, San Francisco .$10.00
Chromalum—Commercial, ℔ lb .03@.05
Cobalt—Oxide, ℔ lb .$1.40@$1.55
Copper—Sulph. English Wks. ton £20@£21
Vitriol (blue), ℔ lb .03¾@.04¼
Nitrate, ℔ lb .25
Copperas—Common, ℔ 100 lbs .50@.65
Best, ℔ 100 lbs .$1.25@$1.50
Liverpool, ℔ ton, in c'sks. £1 11s.@£1 15s.
Corundum—Powdered, ℔ lb .04¼@.09
Flour, ℔ lb .03
Cryolite—Pow., ℔ lb., bbl. lots .06½@.07½
Emery—Grain, ℔ lb. (⅝ kg.) .04½@.05
Flour, ℔ lb .02½@.04
Epsom Salt—℔ lb .01@.01½
Feldspar—Ground, ℔ ton .$6.00@$10.00
Fluorspar—Powdrd, No. 1, ℔ ton .$15@$20
Lump, at mine .$6@$8
French Chalk—℔ ton .$2.25@$2.30
Fuller's Earth—Lump, ℔ ton .$16@$20
Glauber's Salt—in bbls., ℔ cwt .50@ 75
Glass—Ground, ℔ lb .09@.10
Gold—Chloride, pure, crystals, ℔ oz .$12.00
pure, 15 gr., c. v., ℔ doz .$5.40
liquid, 15 gr., g. s. v., ℔ doz .$5.50
Chloride and sodium, ℔ oz .$6.00
15 gr., c.v., ℔ doz .$2.75
Oxide, ℔ oz .$27.25
Gypsum—Calcined, ℔ bbl .$1.75
Iodine—Resublimed, ℔ lb .$3.50@$4.60
Iridium—Oxide ℔ lb .$90
Iron—Nitrate, 40°, ℔ lb .01@.01½
47°, ℔ lb .02@.02½

Kaolin—*See China Clay.*

Kieserite—℔ ton .$9@$10
Lead—Red, American, ℔ lb .04¼@.05
White, American, in oil, ℔ lb .05½@.06½
White, English, ℔ lb., in oil .06½@.07½
Acetate, or sugar of, white .06@.08
Nitrate .05¾@.06½
Lime Acetate—Am. Brown .90@.95
" Gray .$1.50@$1.60
Litharge—Powdered, ℔ lb .04¼@.05½
English flake, ℔ lb .07½@.09¼
Magnesite—Crude ℔ ton of 1,015 kilos .$7@$10
Calcined, ℔ ton of 2,240 lbs .$12@$14
Brick, ℔ ton of 2,240 lbs .$47.50
Manganese—Ore, per unit .23@.28
Oxide, ground, ℔ lb .02½@.06½
Mercuric Chloride—(*Corrosive Sublimate*) ℔ lb .55@.60
Marble Dust—℔ bbl .85c.@$1
Metallic Paint—Brown ℔ ton .$20@$25
Red .$20@$25
Mica—In sheets according to size, 1st quality, ℔ lb .$3.25@$6
Mineral Wool—Ordinary slag .01½
Ordinary rock .02¼
Nitre Cake—℔ ton .$2.50@$3
Ochre—Rochelle, ℔ lb .01@.01½
Washed Nat Oxf'rd, Lump, ℔ lb .06¼@.06½
Washed Nat Oxf'rd, Pow., ℔ lb .06¾@.07¼
Golden, ℔ lb .03@.05
Domestic, ℔ ton .$8@$10

Oils, Mineral—
Cylinder, light filtered, ℔ gal .12@.20
Dark filtered, ℔ gal .10@.15
Extra cold test, ℔ gal .20@.24
Dark steam refined, ℔ gal .07½@.12
Phosphorus—℔ lb .50@.55
Precip., red, ℔ lb .75@.80
white, ℔ lb .80@.85
Platinic Chloride—Dry, ℔ oz .$6
Plumbago—Ceylon, ℔ lb .04@.05
American or German, ℔ lb .02@.02½
Potassium—Cyanide, ℔ lb., C. P. 67%, ℔ lb .52 .40
mining .20@.22
Bromide, domestic, ℔ lb .28@.32
Chlorate, English, ℔ lb .10@.12
Chlorate, powdered, English, ℔ lb .12@.14
Carbonate, ℔ lb., by casks, 98-99% .06@.07
Caustic, ℔ lb., pure stick .04½@.06
Iodide, ℔ lb .$2.58@$2.80
Nitrate, refined, ℔ lb .05@.06
Bichromate, ℔ lb .09@.11
Yellow Prussiate, ℔ lb., 24c. contr., 25c. single casks.
Red Prussiate, ℔ lb .39@.45
Pumice Stone—Select lumps, lb .03½@.15
Original cks., ℔ lb .01½@.02
Powdered, pure, ℔ lb .01½@.02
Pyrites—Non-cupreous, p. unit .10@.11
Quartz—Ground, ℔ ton .$6.00@$10.00
Rotten Stone, Powdered, ℔ lb .03¼@.03½
Lump, ℔ lb .06@.07
Original cks, ℔ lb .04½@.05½
Rubbing stone, ℔ lb .03½@.04
Salt—Liverpool, ground, ℔ sack .70
Domestic, fine, ℔ ton .$7@$7.50
Common, fine, ℔ ton .$4.50@$5
Turk's Island, ℔ bush .26@.28
Salt Cake—℔ ton .$9@$15
Saltpeter—Crude, ℔ lb .04@.05
Soapstone—Ground, ℔ ton .$8@$8
Block and slab according to size.
Sodium—Prussiate, ℔ lb .22@.24
Phosphate, ℔ lb .04@.05
Stannate, ℔ lb .06@.12
Tungstate, ℔ lb .30@.35
Hyposulphite, ℔ cwt., in casks .$1.70@$1.80
Strontium—Nitrate, ℔ lb .08@.09
Sulphur—Roll, ℔ lb .01½@.02
Flour, ℔ lb .01¼@ 01¾
Sylvinit, 27@35%, per unit .36½@.37½
Talc—Ground French, ℔ lb .01¼@.01½
American No. 1, ℔ lb .01@.01½
American No. 2 .006@.008
Terra Alba—French, ℔ cwt .50@ 80
English .70@.80
Domestic, ℔ ton .$8.50@$10
Tin—Crystals, in kegs or bbls .14@.15
feathered or flossed .20
Muriate, single .07@ 1
Double or strong, 54° B .10@.11
Oxymur, or nitro .1
Vermilion—Imp. English, ℔ lb .64@.66
Am. quicksilver, bulk .59@.62
Am. quicksilver, bags .60@.64
Chinese .85@$1.00
Trieste .90@.95
American .11½@.12
Zinc White—Am., Dry, ℔ lb .03¼@.04½
Antwerp, Red Seal, ℔ lb .05½@.05¾
Paris, Red Seal, ℔ lb .06¾@.07
Muriate solution .06
Sulphate crystals in bbls., ℔ lb .03@.03

THE RARER METALS.

The prices given below are the prices in New York, based on those of the German makers, and are per gram except where otherwise stated:

Arsenic (metallic), per kilo .$0.25
Barium (ex amalgam) .4.00
Boron (cryst.) .4.25
Cadmium (metallic), " .2.75
Calcium (per electrol.) .10.00
Cerium (pulv.) .4.00
Chromium (fus.) .50
(cryst.) .60
Cobalt (metallic) .35
Columbium .6.00
Didymium (pulv.) .10.00
Erbium-Yttrium (oxydat.) .10.00
Gallium (cryst.) .21.00
Germanium (fus.) .75.00
Glucinum (pulv.) .12.00
(cryst) .21.00
Indium .9.00
Iridium (fusum) .2.00
(grains) .50
Lanthanum (pulv.) .12.00
Lithium (in glob.) .8.00
Manganese fusum .50
Molybdenum (pulv.) .25
Niobium (pulv.) .6.00
Osmium .2.00
Palladium (wire) .1.50
Potassium (metal), per kilo .27.50
Rhodium .3.25
Ruthenium .5.00
Rubidium .10.00
Selenium (cryst.) .10
Silicon (metal) .00
Strontium (per electrol.) .14.50
Tantalum .9.50
Tellurium (fusum) .50
Thallium .15
Titanium .1.00
Uranium .2.00
Vanadium .7.00
Wolframium (powder), ℔ 10 gr .04
Zirconium .1

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Par val	Assessments. Total Levied	Date and amount of last.			Dividends. Total paid.	Date & amount of last.		
1	Adams, s. l.	Colo..	$1,500,000	150,000	$10	*				$687,500	Jan..	1892	.05
2	Alaska-Treadwell, g.	Al'ska	5,000,000	200,000	25					2,224,000	Apr..	1895	.37½
3	Alice, s.	Mont.	10,000,000	400,000	25	*				975,000	Nov..	1891	.06¼
4	Amador, g.	Cal.	1,250,000	250,000	5	*				31,250	Aug..	1890	.12½
5	American, g.	Colo..	3,000,000	300,000	10	*				225,000	Mar..	1892	.05
6	American Belle, s.g.c	Colo.	2,000,000	400,000	5	*				50,000	Apr..	1891	.12½
7	Americ'n&Nettie, g.s	Colo..		300,000						175,000	Mar..	1892	.05
8	Atlantic, c.	Mich.	1,000,000	40,000	25	280,000	April	1875	$1.00	700,000	Feb..	1891	1.00
9	Argyle, g.	Colo..	1,000,000	1,000,000	1	*				20,000	Mar.	1892	.01
10	Aspen Mg. & S., s. l.	Colo..	2,000,000	200,000	10	*				900,000	July.	1894	.10
11	Aurora, i.	Mich..	2,500,000	100,000	25					650,000	Feb..	1893	2.00
12	Badger, s	Ont...	250,000	50,000	5					37,500	Mar.	1890	.25
13	Bald Butte	Mont.	250,000	250,000	1	*				382,000	Jan.	1895	.05
14	Bangkok-C. Bell, c.s.l.	Colo..	600,000	600,000	1					95,510	July.	1895	.01
15	Bates Hunter, s. g.	Colo..	1,000,000	1,000,000	1					67,500	Dec..	1891	.00¾
16	Belden, F. E., m.	N. H.	500,000	100,000	5	*				151,113	July..	1895	.04
17	Belle Isle, s.	Nev..	10,000,000	100,000	100	230,271	Sept	1893	.10	390,000	Dec..	1879	.25
18	Belcher, s. g.	Nev..	10,400,000	104,000	100	3,262,930	Nov.	1893	.20	15,397,200	Apr..	1876	1.00
19	Bellevue, Idaho, s. l.	Idaho	1,250,000	125,000	10	120,000	Dec..	1889	.25	200,000	Jan..	1890	.10
20	Best Friend	Colo.	1,000,000	1,000,000	1	*				90,000	Feb..	1892	.01
21	Bi-Metallic, s. g.	Mont.	5,000,000	200,000	25					1,630,000	June	1893	.10
22	Bodie Con., g. l.	Cal.	10,000,000	100,000	100	714,990	July	1893	.15	1,677,572	Dec..	1894	.25
23	Boston & Mont., g.	Mont.	2,500,000	250,000	10	*				520,000	June	1886	.15
24	Boston & Mont., c. s.	Mont.	3,750,000	150,000	25	*				2,175,000	May	1895	2.00
25	Brotherton, i.	Mich.	2,000,000	80,000	25	*				120,000	Mar	1895	.50
26	Bulwer, g.	Cal.	10,000,000	100,000	10	155,000	July	1893	.15	190,000	Oct.	1892	.05⅛
27	Bunker Hill & S. s.l.	Idaho	3,000,000	300,000	10	*				150,000	Oct.	1888	.06
28	Caledonia, g.	Dak..	10,000,000	100,000	100	505,000	May.	1885	.15	192,000	Oct.	1890	.08½
29	Calumet & Hecla, c.	Mich..	2,500,000	100,000	25	1,200,000				42,850,000	May..	1895	5.00
30	Centen'l-Eureka, s.l.	Utah.	1,500,000	30,000	50	30,000	Mar.	1888	1.00	1,170,000	July..	1895	.50
31	Central, c.	Mich..	500,000	20,000	25	100,000	Oct..	1861	.65	1,970,000	Feb..	1891	1.00
32	Champion, g	Cali..	340,000	34,000	10	150,000				215,600	July..	1895	.10
33	Chrysolite, s. l.	Colo..	10,000,000	200,000	50	*				1,650,000	Dec..	1884	.25
34	Cœur D'Alene, s. l.	Idaho	5,000,000	500,000	10					340,000	June	1893	.06
35	Colorado Central, s.l.	Colo..	2,700,000	275,000	10	*				502,661	Apr..	1893	.05
36	Commonwealth, s.	Nev..	10,000,000	100,000	100	200,000	Nov.	1893	.10	20,000	Nov..	1890	.20
37	Confidence, s. l.	Nev...	2,496,000	24,960	100	1,589,550	Aug..	1892	.50	277,680	Apr..	1889	1.00
38	‡Cons.Cal. & Va., s.g	Nev...	21,600,000	216,000	100	216,000	Dec..	1892	.50	3,952,800	Mar..	1895	.25
39	Contention, s.	Ariz..	12,500,000	250,000	50					2,637,500	Aug.	1892	.20
40	Cook's Peak, s.	N. M..	2,000,000	200,000	10					119,532	Nov	1892	.05
41	Cop. Queen Con., c.	Ariz..	2,000,000	200,000	10					1,910,000	June.	1895	.25
42	Coptis	Nev..	10,000,000	100,000	100					68,000	Feb...	1895	.01
43	Cortes, *	Nev.	1,500,000	300,000	5	*				735,000	Feb..	1893	.15
44	Crescent, s. l. g.	Utah.	15,000,000	600,000	25	60,000	Oct	1892	.10	238,000	Oct..	1888	.03
45	Crown Point, g. s.	Nev...	10,000,000	100,000	100	2,750,000	June	1893	.25	11,898,000	Jan..	1875	.00
46	Daly, s. l	Utah.	3,000,000	150,000	20	*				2,850,000	May..	1893	.25
47	†Deadwood-Terra, g.	Dak..	5,000,000	200,000	25					1,140,000	Sep'..	1892	.05
48	DeLamar, g. s	Idaho	2,000,000	400,000	5					1,616,000	July..	1895	.36
49	Derbec B. Grav., g.	Cal...	10,000,000	100,000	100	100,000	Sept.	1892	.10	260,000	Mar	1891	.05
50	Dexter, g. s	Nev..	1,000,000	100,000	10	*				245,000	July	1893	.25
51	Elkhorn, s.	Mont.	1,000,000	200,000	5					1,324,689	May	1895	.12½
52	Elkton	Colo..	500,000	500,000	1					60,000	Dec.	1894	.01
53	Enterprise, s.	Colo..	2,500,000	500,000	5					850,000	June.	1893	.25
54	EurekaCon., s. l. g.	Nev...	1,000,000	50,000	20	550,000	June	1889	.50	5,112,500	Jan .	1892	.25
55	Eureka Hill, g. s. l.	Utah.	1,000,000	10,000	10	*				1,500,000	Jan..	1891	.04
56	Evening Star, s. l.	Colo..	500,000	50,000	10					1,437,500	Dec.	1889	.25
57	Father de Smet, g.	Dak..	10,000,000	100,000	100	200,000	Nov..	1878	1.00	1,125,000	Dec..	1885	.20
58	Franklin, c.	Mich..	1,000,000	40,000	25	320,000	June	1867	2.50	1,245,000	Jan..	1894	2.00
59	Glengarry	Mont.	1,000,000	100,000	10					10,000	June.	1891	10
60	Gold & Globe, g.	Colo..	750,000	750,000	1					9,375	Mar..	1895	.00¼
61	Gould & Curry, s. g.	Nev...	10,800,000	108,000	100	4,688,400	Oct .	1893	.10	3,826,800	Oct.	1870	10.00
62	Grand Prize, s.	Nev...	10,000,000	100,000	100	785,000	Jan..	1890	.30	495,000	Mar.	1884	.25
63	Granite Mountain, s.	Mont.	10,000,000	400,000	25					12,120,000	July.	1892	.20
64	Great Western, l. q.	Cal...	5,000,000	50,000	100	50,526		1889	.15	388,366	Nov	1893	.25
65	Hale & Norcross, g. s.	Nev...	11,200,000	112,000	100	5,646,800	June	1893	.50	1,822,000	Aug	1888	.50
66	Hecla Con., s. g. l. c.	Mont.	1,500,000	30,000	50	*				2,100,000	July	1895	.50
67	Hel'a Mg.& Red, s.l.g.	Mont.	8,315,000	663,000	5					187,970	July..	1886	.06
68	Helena & Frisco, s.l.	Idaho	2,500,000	500,000	5					280,000	Feb..	1892	.02
69	Helena & Victor	Mont.	1,000,000	200,000	5					80,000	May .	1892	.05
70	¶Holmes, s.	Nev...	10,000,000	100,000	100	345,000	Mar.	1890	.25	75,000	Apr .	1892	.25
71	Homestake, g.	Dak..	12,500,000	125,000	100	200,000	July.	1878	1.00	5,556,250	July..	1895	.25
72	Hope, s.	Mont.	1,000,000	100,000	10	*				552,250	Jan	1895	10
73	Horn-Silver, s. l.	Utah.	10,000,000	400,000	25	*				5,147,500	June.	1895	.12½
74	Idaho, g.	Cal...	310,000	3,100	100					5,489,000	Sept.	1893	2.50
75	Illinois, s.	N. M..	100,000	100,000	1	*				45,000	Apr..	1889	.20
76	Iron Mountain, s.	Mont.	5,000,000	500,000	10	*				375,000	July..	1895	.02
77	Iron-Silver, s. l.	Colo..	10,000,000	500,000	20	*				2,500,000	Apr..	1889	.20
78	Jackson, g. s.	Nev..	5,000,000	50,000	100	247,500	Mar..	1893	.20	80,000	Feb	1895	.04
79	Kearsarge, c.	Mich..	,000,000	40,000	25	190,000	Oct..	1887	1.00	80,000	Jan..	1890	2.00
80	Kennedy	Cal...	10,000,000	100,000	100					1,646,000	July.	1895	.48
81	Leadville Con., s. l.	Colo..	4,000,000	400,000	10	*				316,000	Feb..	1893	.03
82	Lexington, g. s.	Mont.	4,000,000	40,000	100	*				652,200	July.	1893	.90
83	Little Chief, s. l.	Colo..	10,000,000	200,000	50	*				820,000	Dec..	1890	.05
84	Maid of Erin	Colo..	3,000,000	600,000	5					708,900	Apr..	1893	.25
85	Mammoth, s. l. c.	Utah	10,000,000	400,000	25	110,000		1882	.25	1,040,000	Dec...	1891	.10
86	Maxfield	Utah.	3,000,000	300,000	10					117,000	Apr..	1892	.03
87	Mayflower, d. gravel	Cal...	1,200,000	60,000	20	*				236,000	July.	1895	.10
88	Minas Prietas, g. s.	Mex..	1,000,000	100,000	10					350,000	Dec..	1890	.50
89	Minnesota, c.	Mich..	1,000,000	40,000	25	420,000	April	1886	1.00	1,820,000	Mar.	1876	
90	Minnesota Iron, i.	Minn.	16,500,000	165,000	100					2,745,000	Apr..	1893	1.50
91	Mollie Gibson, s.	Colo..	5,000,000	1,000,000	5	19,500	Jan..	1891	.01	4,08[illegible]	Jan..	1895	.05
92	Monitor, g.	S.Dak	2,500,000	250,000	10					45,000	Oct..	1890	.03
93	Mono, g.	Cal...	5,000,000	50,000	100	797,500	Feb..	1893	.25	[illegible]	Mar	1886	.25
94	Montana, Lt., g. s.	Mont.	3,300,000	660,000	5	*				[illegible]	Jan.	1895	12½
95	Moose	Colo..	600,000	600,000	1					72,000	Nov..	1894	.02
96	Morning Star, s. l.	Colo..	1,000,000	100,000	10					1,025,000	Dec..	1891	[illegible]
97	Morning Star Drift, g	Cal...	240,000	2,400	100	*				410,300	July .	1895	7.00
98	Moulton, s. g.	Mont.	2,000,000	400,000	5					460,000	July.	1894	.05
99	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	137,500	June	1880	2.00	225,000	Nov	1893	.30
100	Mt. Rosa, g	Colo..	1,000,000	1,000,000	1					10,000	Jan...	1895	.10
101	Napa, q.	Cal...	700,000	100,000	7					720,000	June.	1895	.20
102	Navajo, g. s.	Nev..	10,000,000	100,000	100	538,714	Sept.	1893	.10	226,111	Apr..	1889	.10
103	New Guston, s.	Colo..	550,000	110,000	5					1,877,500	Apr..	1892	.75
104	North Banner Con.	Cal...	1,000,000	100,000	10					20,000	July..	1891	.05
105	North Commonw'th	Nev..	10,000,000	100,000	10	90,000	Jan..	1893	.10	25,000	June	1891	.25
106	N. Hoover Hill, g. s.	N. C.	300,000	120,000	2½	*				30,000	Dec.	1885	.06½
107	North Belle Isle, s.	Nev..	10,000,000	100,000	100	513,075	April	1893	.10	230,000	May	1888	.50
108	North Star, s.	Cal..	1,000,000	100,000	10	20,000		1885	.02	450,000	June	1893	.50
109	Nugget, g.		1,000,000	1,000,000	1	*				10,000	Jan..	1895	.00½
110	Omaha Cons., g.	Cal...	2,400,000	24,000	100					97,200	July..	1894	.15
111	Ontario, s. l.	Utah	15,000,000	150,000	100					13,175,000	Oct..	1892	.50
112	Ophir, g. s.	Nev..	10,000,000	100,000	100	4,391,040	July.	1893	.25	1,595,800	Jan	1880	1.00
113	Osceola, c.	Mich..	1,250,000	50,000	25	480,000	April	1876	1.60	1,947,500	June	1895	1.00
114	Pacific Coast, b.	Cal...	2,000,000	20,000	100					422,500	July.	1893	1.00
115	Parrot, c.	Mont.	2,300,000	230,000	10					1,369,000	June	1893	.10
116	Petro	Utah.	10,000,000	10,025	100					17,500	July..	1891	.75
117	Pharmacist, g.	Cal...	1,200,000	1,200,000	1					81,000	June.	1893	.01
118	Plumas Eureka, g.	Colo.	1,406,250	140,600	50					2,696,295	Oct...	1893	.18
119	Plymouth Con., g.	Cal...	5,000,000	100,000	50	*				2,280,000	Feb.	1888	.40
120	Poorman, g. s.	Idaho	375,000	300,000	125	*				68,260	Sept.	1892	.15
121	Portland, g.	Colo..	3,000,000	3,000,000	1	*				161,000	May..	1895	.01
122	Quicksilver, pref., q.	Cal...	4,300,000	43,000	100					1,823,911	June	1891	1.25
123	" com., q.	Cal...	5,700,000	57,000	100					643,867	July.	1882	.40
124	Quincy, c.	Mich..	1,250,000	50,000	25	200,000	Dec..	1862		7,491,000	May.	1895	4.00
125	Red Cloud	Idaho	1,000,000	200,000	5					153,000	Dec..	1892	.10
126	Retriever, l.	S.Dak	1,250,000	250,000	5					20,000	Aug..	1891	.03
127	Rialto, g.	Colo..	300,000	300,000	1	*				50,250	Apr..	1892	.01½
128	Richmond, s. l.	Nev..	1,350,000	54,000	25	*				4,386,780	Sept.	1893	.25
129	Rico-Aspen	Colo..	5,000,000	1,000,000	5					325,000	Nov..	1894	.02½
130	Ridge, c.	Mich..	1,250,000	50,000	25	219,939	Mar .	1886	50	99,785	Feb..	1880	.50
131	Robinson Con., s. l.	Colo..	10,000,000	200,000	50	*				585,000	Mar .	1886	.05
132	Savage, s.	Nev..	11,200,000	112,000	100	6,966,000	June	1893	.25	4,460,000	June	1869	3.00
133	Sierra Buttes, g.	Cal...	2,225,000	122,500	10					1,559,933	Oct...	1893	.12½
134	Sierra Nevada, s. g.	Nev..	10,000,000	100,000	100	6,521,910	Aug.	1893	.20	102,000	Jan..	1871	1.00
135	Silver Cord, s. l. g.	Colo..	5,000,000	500,000	10					270,000	Apr..	1889	.10
136	Silver King, s.	Utah.	10,000,000	100,000	100	97,479	Aug..	1892	.25	1,025,500	July.	1895	.25
137	Silver Mg. of L.V., s.l.	N. M..	500,000	500,000	1					300,000	Dec..	1891	4.05
138	Small Hopes Con., s.	Colo..	5,000,000	250,000	20	*				3,225,000	Oct...	1893	.10
139	Standard, g. s.	Cal...	10,000,000	100,000	100	100,000	June	1890	.50	3,781,159	June.	1895	.10
140	Swansea, g. s.	Colo..	600,000	60,000	10					39,000	Sept.	1892	.10
141	Tamarack, c.	Mich..	1,250,000	50,000	25	520,000	April	1885	3.00	4,270,000	June.	1894	4.00
142	Trinity Riv'r Hydr., g	Colo..	500,000	500,000	1	*				37,500	Apr..	1894	.00½
143	Union	Colo..	1,250,000	1,250,000	1					27,740	May..	1895	.01
144	United Verde, c.	Ariz..	3,000,000	300,000	10	*				562,500	Dec..	1893	.25
145	Victor, g	Colo..	1,000,000	200,000	5					365,000	July..	1895	.10
146	Victor L. & M. Co., g.	Colo..	600,000	600,000	1					6,900	June.	1895	.05
147	Ward Con., s.	Colo..	2,000,000	200,000	1					20,000	Dec..	1889	.05
148	W. Y. O. D.	Cal...	60,000	30,000	2	22,500	May..	1891	.10	103,000	July.	1895	.10
149	Yankee Girl, s	Colo.	1,300,000	260,000	5					520,000	July.	1891	.25
150	Yellow Jacket, g.	Nev.	12,000,000	120,000	100		July.	1893	.25	2,184,000	Aug..	1871¶	1.50

NON-DIVIDEND-PAYING MINES

	Name and Location of Company.		Capital Stock.	Shares. No.	Par	Assessments. Total levied.	Date and am't of last.		
1	Ajax, g. s. l.	Utah.	$3,000,000	300,000	$10	$15,000	Mar.	1895	[illegible]
2	Alliance, s. g.	Utah.	100,000	100,000	1	120,000	Feb..	1891	.10
3	Allouez, c.	Mich.	2,000,000	80,000	25	1,424,937	Oct..	1891	.10
4	Alpha Con., g. s	Nev..	3,000,000	30,000	100	209,000	Sept.	1892	.10
5	Alta, s.	Nev..	10,080,000	100,800	100	3,369,880	Jan.	1892	.05
6	American Flag, s.	Colo..	1,250,000	125,000	1	300,000	June	1887	
7	Anchor, s. l. g.	Utah.	3,000,000	150,000	5	560,000	July.	1893	.15
8	Barcelona, g.	Nev..	5,000,000	200,000	5	*			
9	Belmont, g.	Cal..	500,000	500,000	100	*			
10	Belmont, s.	Nev..	5,000,000	50,000	100	735,000	April	1886	.10
11	Best & Belcher, s. g.	Nev..	10,080,000	100,800	10	2,405,275	Aug..	1892	.25
12	Black Oak, g.	Cal..	3,000,000	300,000	100	*			
13	Brownlow, g.	Colo..	250,000	250,000	5				
14	Brunswick, g.	Cal..	2,000,000	400,000	2				
15	Bullion, s. g.	Nev.	10,000,000	100,000	100	2,890,000	Aug.	1892	.25
16	Butte & Boston, c. s.	Mont.	5,000,000	200,000	10				
17	Butte Queen, g.	Cal...	1,000,000	100,000	1	6,000	Jan..	1892	
18	Calaveras, g.	Cal...	500,000	500,000	5				
19	Calaveras Con., g.	Cal...	800,000	160,000	10				
20	California, g.	Cal...	1,000,000	100,000	5	9,000	Mar..	1892	
21	California Con. l. q.	Cal....	2,250,000	450,000	10				
22	Challenge Con., g. s.	Nev..	5,000,000	50,000	10				
23	Chollar, s. g.	Nev..	11,200,000	112,000		[illegible]	May..	1895	[illegible]
24	Colchis, s. g.	N. M..	500,000	150,000	5				
25	Colorado, s.	Colo..	1,625,000	325,000	1				
26	Comstock, s.	Utah.	1,250,000	250,000	100				
27	Comstock Tun.	Nev..	10,000,000	100,000	100	85,000	Mar.	1887	.10
28	Con. Imperial, g. s	Nev..	5,000,000	50,000	50	2,062,500	Jan..	1892	.25
29	Con. New York, s. g.	Nev..	5,000,000	100,000	100	110,000	Mar..	1892	.10
30	Con. Pacific, g.	Cal.	6,000,000	60,000	10	198,000	June	1890	.10
31	Crescent, s. l.	Colo.	3,000,000	300,000	100	*			
32	Crocker, s.	Ariz.	10,000,000	100,000	1	165,000	Aug.	1892	.05
33	Crowell, g.	N. C..	500,000	500,000	1				
34	Dahlonega, g	Ga....	250,000	250,000	10	*			
35	Decatur, s	Colo..	1,500,000	300,000					
36	Denver City s.	Colo..	5,000,000	500,000	11	*			
37	Denver Gold, g.	Colo..	300,000	60,000	5				
38	Dickens-Custer, s.	Idaho	2,100,000	420,000	5				
39	Durango, g.	Colo..	500,000	500,000	1	*			
40	El Dorado, g.	Cal...	1,000,000	250,000	4	*			
41	Emma, s	Utah.	625,000	500,000	125				
42	Emmons, s. l.	Colo..	2,000,000	2,000,000	1				
43	Empire, s.	Utah.	10,000,000	100,000	100				
44	Eureka Tunnel, s. l.	Nev...	10,000,000	100,000	100	*			
45	Exchequer, s. g.	Nev...	10,000,000	100,000	100	940,000	Jan..	1892	.25
46	Found Treasure, g. s.	Nev...	10,000,000	100,000	100	130,500	Jan..	1892	.50
47	Gogebic I. Syn., i.	Wis..	5,600,000	200,000	25				
48	Gold Cup, s.	Colo..	500,000	500,000	1	*			
49	Golden Era, s	Mont.	1,000,000	200,000	10	*			
50	Gold Flat, g.	Cal	1,000,000	100,000	10	5,000	Mar..	1892	.05
51	Gold Rock, g.	Cal.	1,000,000	500,000	2				
52	Golden Feather Ch., g	Cal...	900,000	180,000	5				
53	Goodyear g. s. l	Mont.	1,000,000	200,000	5	13,000	Feb..	1892	.01
54	Grand Duke, s.	Colo..	800,000	80,000	10				
55	Gregory Con., g.	Mont.	3,000,000	300,000	10				
56	Harlem M. & M. Co., g.	Cal...	1,000,000	200,000	5				
57	Hartery Con., g.	Cal...	1,000,000	100,000	10	22,000	Oct..	1890	.05
58	Hartshorn, g s. l.	S.Dak	1,250,000	250,000	5	8,750	Sept.	1891	.00½
59	Head Cent. & Tr., s. g	Ariz..	10,000,000	100,000	100	16,981	Mar..	1892	.03
60	Hector, g.	Cal...	1,500,000	300,000	5	45,000	Jan..	1889	.15
61	Himalaya, g. s l.	Utah.	1,800,000	80,000	10	12,800	Oct..	1892	.00½
62	Holywood	Cal...	200,000	100,000	2				
63	Huron, c.	Mich..	1,000,000	40,000	25	280,000	May .	1887	1.00
64	Idaho, g. s	Idaho	1,250,000	250,000	5				
65	Ingalls, g	Colo..	100,000	20,000	5				
66	Ironton, i.	Wis.	1,000,000	40,000	25				
67	Iroquois, c.	Mich..	1,250,000	50,000	25				
68	Kentuck Con	Nev..	10,500,000	105,000	00	57,750	July	1892	[illegible]
69	Julia Con., g. s.	Nev...	11,000,000	110,000	100	1,463,000	Jan..	1889	[illegible]
70	Justice, g. s. c	Colo.	500,000	500,000	1	*			
71	Lacrosse, g.	Colo..	1,000,000	100,000	10	*			
72	Little Josephine, s.	Colo..	250,000	50,000	5				
73	Little Pittsburg, g. s.	Utah.	4,000,000	400,000	10	4,000	Mar..	1892	
74	Lone Star Cons., g.	Cal...	500,000	500,000	1	10,000	April	1892	.00½
75	Madeleine, g. s. l.	Colo...	750,000	50,000	1	4,500	Feb.	1892	.00½
76	Mammoth Gold, g.	Ariz..	2,500,000	500,000	5	*			
77	Mayflower Gravel, g.	Cal.	1,000,000	100,000	10	*			
78	Mexican, g. s.	Nev...	10,000,000	100,000	100	2,917,560	Oct..	1892	.50
79	Michigan, g s	Mich..	2,500,000	100,000	25	40,000	Mar..	1892	
80	Mike & Starr, s. c	Colo..	1,000,000	200,000	5	*			
81	Milwaukee, s.	Mont.	500,000	500,000	1	*			
82	Modoc Chief, l. s. g.	Idaho	1,000,000	200,000	5	5,000	Jan..	1892	.00½
83	Monitor, g.	Colo..	100,000	100,000	1	12,500	May.	1891	.01
84	Montreal, g. s. l.	Utah.	750,000	150,000	5	4,500	Feb..	1892	.00½
85	Mutual Mg. & Sm	W'sh.	100,000	100,000	1	*			
86	Neath, g.	Colo.	1,000,000	100,000	10				
87	Nelson	Cal...	50,000	10,000	5				
88	Nevada Queen, s.	Nev...	10,000,000	100,000	100	200,000	Oct..	1889	.25
89	New Gold Hill	N. C..	1,750,000	350,000	5				
90	New Pittsburg, s. l.	Colo.	2,000,000	200,000	10	*			
91	North Standard, g.	Cal...	10,000,000	100,000	100	20,000	Nov.		
92	Occidental Con., g.s		10,000,000	100,000	100	245,000	April	1892	.25
93	Oneida Chief, g.	Cal...	500,000	125,000	100	*			
94	Oriental & Miller, s.	Nev...	10,000,000	400,000	100				
95	Original Keystone, s.	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10
96	Osceola, g.	Nev...	5,000,000	500,000	10	*			
97	Overman, g. s.	Nev...	11,520,000	115,200	100	4,001,340	May.	1892	.10
98	Pay Rock, s	Colo..	1,000,000	200,000	5				
99	Peer, s.	Ariz..	10,000,000	100,000	100	190,000	Feb..	1892	.10
100	Peerless, s.	Ariz..	10,000,000	100,000	100	405,000	Oct...	1890	.15
101	Pennsylva's Cons., g	Cal...	5,150,000	515,000	10	36,050	Feb..	1892	.10
102	Phœnix, g.	Ariz..	500,000	500,000	1				
103	Phœnix Lead, s. l.	Colo..	100,000	100,000	1				
104	Pilgrim, g	Cal...	600,000	300,000	2				
105	Pioche M.&R., s.g.l.	Utah.	20,000,000	000,000	10				
106	Poorman, Ltd., s. l.	Idaho	250,000	50,000	5				
107	Potosi, s.	Nev...	11,200,000	112,000	100	1,573,000	Mar..	1890	.50
108	Proustite, s.	Idaho	250,000	250,000	1	*			
109	Puritan, s. g.	Colo..	1,500,000	150,000	10	*			
110	Quincy, c	Colo..	3,000,000	300,000	10				
111	Rainbow, g.	S.Dak	1,250,000	250,000	5	4,250	July.	1892	.00½
112	Rappahannock, g. s.	Va...	250,000	250,000	1	*			
113	Red Mountain, s.	Colo..	300,000	60,000	5				
114	Ropes, g. s	Mich..	2,000,000	80,000	25	167,200	Feb.		.50
115	Ruby & Dun., s. l. g.	Nev..	25,300	506	50	*			
116	Russell, g.	N. C..	1,500,000	300,000	5				
117	Sampson, g. s. l.	Utah.	10,000,000	100,000	100	288,15[illegible]	July	1888	.08
118	Silver Age, s. l. g.	Colo..	2,000,000	200,000	10	*			
119	Silver Bell, s.	Ariz..	850,000	170,000	5				
120	Silver King, s.	Cal	2,000,000	400,000	5				
121	Silver Queen, c.	Ariz	5,000,000	200,000	25	*			
122	Silverton, s	Colo..	300,000	60,000	5				
123	Siskiyou Con., l.	Cal...	2,000,000	200,000	10	13,000	May..	1892	.01
124	South Bulwer, g	Cal..	10,000,000	100,000	100	100,000	May.	1881	.25
125	South Hite, g.	Cal...	10,000,000	100,000	100	195,000	Jan..	1883	.05
126	Stanislaus, g.	Cal...	2,000,000	200,000	10				
127	St. Kevin, s. g.	Colo..	100,000	100,000	1	*			
128	St. Louis & Mex., s.	Mex..	000,000	500,000	10	*			
129	St. Louis & St. Elmo.	Colo..	,000,000	200,000	10				
130	St. L. & Sonora, g. s.	Ariz..	3,000,000	300,000	10	*			
131	Stemwinder, l. s.	Idaho	,500,000	500,000	1				
132	Sunday Lake, i.	Mich..	250,000	50,000	25				
133	Sullivan Con., g.	Dak..	600,000	200,000	3	*			
134	Sylvanite, s.	Colo..	5,000,000	500,000	10	*			
135	Taylor-Plumas, g.	Cal...	425,000	65,000	5	3,575	Mar..	1892	.01½
136	Telegraph, g. s.	Cal...	325,000	65,000	5	3,575	Mar.	1892	.01½
137	Telegraph, g. s.	Mex..	100,000	100,000	1	70,000	Feb..	1892	.10
138	Teresa, g. s.	Cal.	1,000,000	200,000	5	10,000	Feb..	1883	.10
139	Tioga Con., g.	Nev..	10,000,000	100,000	10	295,000	May .	1888	.25
140	Tornado Con., g. s.	Nev..	100,000	100,000	1	*			
141	Tuscarora, s.	Nev..	10,000,000	500,000	20	385,000	Jan..	1892	.25
142	Union Con., g. s.	Nev..	10,000,000	100,000	100	370,000	June	1892	.25
143	Utah, s.	Nev..	10,000,000	100,000	100	245,000	Aug..	1890	.25
144	Ute & Ulay, s. l.	Colo..	1,000,000	500,000	2	1,500	Mar..	1892	.001
145	Valley, g.	Cal.	575,000	460,000	125				
146	Washington, c.	Mich.	1,000,000	40,000	5				
147	West Argentine, s.	Colo..	750,000	150,000	5				
148	West Granite Mt., s.	Mont.	500,000	100,000	5				
149	Whale, s.	Mont.	5,000,000	500,000	10	*			
150	Wood River, g.	Idaho	2,000,000	200,000	10	3,000	Aug..	1891	.00½
151	Yuma, c. s. g	Ariz	10,000,000	400,000	2				

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. † The Deadwood previously paid $275,000 in eleven dividends and the Terra $75,000. ‡ Previous to the consolidation in August, 1884, the California had paid $31,320,000 in dividends, and the Cons. Virginia $12,390,000. ‖ Previous to the consolidation of the Copper Queen with the Atlanta, August, 1885, the Copper Queen had paid $1,350,000 in dividends. ¶ Previous to this company's acquiring Northern Belle, that mine paid $2,400,000 in dividends against $425,000 in assessments.